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EDITED BY
FRANK P. FOSTER, M.D.

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Original Communications.

CONGENITAL TUMORS OF THE NECK.*

By FRANK HARTLEY, M. D.

There can be no more interesting or important subject of study, in my opinion, Mr. President, than that of the congenital defects occurring within the neck and face. Though our inclination is generally to seek after those conditions in which we may explain their cause and effect by micro-organic influences, still there is a class of disordered states in our development which give rise to quite as interesting conditions as any we have in surgery. To me the study of some of these congenital defects in the neck, and the disturbances of nutrition and the local points for infection which they offer, has been for a long time a matter of great interest—an interest due largely to the fact that they are often unrecognized because of their resemblance to the hygromata, lymphangeiomata cystica, the lipomata, accessory thyreoid glands, cold abscesses, and carcinomata not of branchiogenic origin.

The study of the various stages of development in the embryo, which lead to the formation of the neck, floor of the mouth, and the auricle, is difficult and to many exceedingly uninteresting in its detail, yet it is an indispensable prerequisite for the proper explanation and diagnosis of such conditions. Of the arches which are to form the greater portion of the face and neck, and which, at the fourth week of embryonic life, appear as small and parallel buds at the cervical flexure, the first and second are characterized by a very rapid growth, soon manifested in the overlapping of the third and fourth and in the production of a cavity on the posterior portion of the cervical flexure. This cavity—the sinus cervicalis—is bounded in the depth by the fourth arch, which is itself covered by the third arch and, on its superior and anterior surfaces, by the hyoid arch, with its prominent opercular process. So complete is the overlapping of the hyoid arch that the third and fourth arches are easily excluded from view. The closure of this sinus is brought about by the union of its opercular process with the prominent retrobranchial margin of the lateral cervical and thoracic walls. The third and fourth arches do not unite, however, with the hyoid arch. The third arch unites with the lateral cervical wall over the fourth arch, and in its further development gives rise to the second cavity and an infundibular passage, the fundus and infundibulum præcervicale. The mandibular arch maintains its shape to a large extent in its further development, and, together with the first cleft, contributes to the formation of the external ear. The external clefts of the three following arches are gradually erased after the closure of the cervical sinus and are of secondary importance, lying as they do behind the very large hyoid arch, which is represented by all that superficial portion of the neck which we know as the anterior cervical triangle. By the intrusion of the ectoderm and the advance of the oral extremity of the mesenteron (the digestive tract), the entoderm and ectoderm meet and are erased, forming at their point of erasure the isthmus faucium.

By the growth and union of the palate and the frontal process, the stomodæum is thus divided into three parts—the nares and the mouth—while upon the lateral walls of the mesenteron are seen four protrusions—the internal aspect of the arches, with their clefts.

The first internal cleft gives origin to the internal ear—*i. e.*, the Eustachian tube and the middle ear—separated from the external ear (the first external cleft) by the membrana tympani.

The second internal cleft is found in that portion of the pharynx known as the fossa of Rosenmüller and in the supratonsillar fossa. It extends as a long circular canal toward the second external cleft, where it is closely connected with the sinus cervicalis on its anterior wall (Rabl's *Kiemengang*).

The third internal cleft is represented by that portion in front of the plica nervi laryngei. It extends toward and is closely applied to the third external cleft (the floor of the fundus præcervicalis), where, dividing into a dorsal and a ventral limb, it gives origin by these to the carotid (Steda) and thymus glands (Born).

The fourth internal cleft and its appendix, the fundus branchialis, is to be found in the sinus pyriformis. It never reaches its corresponding external cleft, but remains separated from it by a well-marked amount of mesoderm. It is thus excluded from any connection with the cervical sinus. In the median line of the neck the arches approaching one another leave a triangular space, the meso-branchial field (His), bounded laterally and above by the opercular processes of the second arch; below, by the thoracic wall. The union of the first arch above is direct, while in the second and third arches it takes place indirectly through the body of the hyoid bone.

As a result, the internal margins of the opercular processes of the sinus cervicalis converge in the median line at the hyoid bone in an oblique angle, and are gradually united with the primary thoracic wall, which advances as a triangular piece between them.

In the upper portion of this mesobranchial field is seen the tuberculum impar, the future tongue, and below it the furcula, which is later to become the epiglottis and arytæno-epiglottic folds.

The tuberculum impar is separated from the mandibular arch by a groove, the submaxillary groove, and from the ends of the two arches behind by a deep groove, the lingual duct.

As growth continues, the ventral ends of the second and third arches on each side coalesce, and, extending behind the tuberculum impar, join those of the opposite side between the tuberculum in front and the divided median eminence behind, from which the larynx is to develop. The groove between the united bases of the second and third arches and the body of the tongue is the V-line along which the circumvallate papillæ develop. The frenum of the tongue is the primitive union with the mandibular arch. The prominent anterior edge of the second arch is the anterior pillar of the fauces, while the lateral glosso-epiglottic fold is the posterior edge of the third arch. The frenum epiglottidis is a fold passing from the united edges of the third arches to the epiglottis. The trigeminal area of the tongue is represented by the tuberculum impar, and is innervated by the trigeminal nerve, the axial nerve of the first arch. The glosso-pharyngeal area is that portion of the tongue behind the circumvallate papillæ including the mucous membrane over the glosso-epiglottic fossæ, and its innervation is derived from the glosso-pharyngeal nerve, the axial nerve of the third arch. The muscular supply of the tuberculum impar, the prominent posterior portion of the ventral ends of the posterior cranial or first cervical metamere is the hypoglossal nerve, which in the lower vertebrates is a cervical nerve, and even in man preserves its connection with the cervical plexus.

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* Read before the New York Surgical Society, April 15, 1891.

From the ventral surface of the pharynx, opposite the second, third, and fourth arches, there arise three pouches giving origin to the thyreoid gland, the thymus gland, and the larynx, including the bronchi and lungs.

The thyreoid gland arises from the thyreoglossal duct, lingual, or ductus excretorius linguæ (Bochdalek, Jr.), in the fourth week of embryonic life, and is seen on the floor of the mouth between the median and two lateral portions of the tongue. It dips down to the level of the fourth pair of arches, and, bifurcating at its fundus, gives rise to the middle lobe and the isthmus. Here it is supplemented by a pair of lateral outgrowths derived apparently from the epithelium of the fourth pouch (?).

The upper portion of the duct is obliterated and the terminal follicles are dilated as those of the organ and the tubules disappear. Occasionally the thyreoglossal duct remains pervious. From the development of the follicular tissue about it suprathyreoid, prehyoid, and suprahyoid lobes may exist. Cystic enlargement of this duct, or its tubules and follicles, may be present in the tongue and give us one of the varieties of so-called ranula. In some form it is seen about twelve times in fifty cases. In reference to the origin of the thymus gland we can only say that there is much evidence in favor of the view that it originates from the ventral limb of the third internal cleft, where it closely adjoins the third external cleft in the fundus præcervicalis. The corpuscles of Hassell are believed to be derivatives of the epidermic layer of this cleft with a modified corium and an enormous overgrowth of lymphoid tissue. The larynx arises as a median grooved meso-branchial prominence between the ventral ends of the fourth visceral arches below the tuberculum impar. The groove on its anterior aspect is the forward continuation of the pit which, deepening and branching, gives rise to the bronchial tubes. The anterior prominence is the furcula which gives rise to the epiglottis and ary-epiglottic folds, on each side of which are the pyriform sinuses (fourth internal cleft). The thyreoid cartilage is considered to be a derivative of the fourth arch, while the other cartilages of the larynx and those of the trachea and bronchi are but specializations of the bronchial diverticulum. This view in reference to the thyreoid cartilage is not, however, accepted by all.

The only reliable landmarks which can be used as guides in determining the origin of any fistula or tumor are those structures which are present at the time of the formation of the arches. These structures are the axial nerve and artery. Of these, the nerves are the more important, since they are less subject to great changes. The arteries are not so useful for the reason that the first and second primary arches disappear; the third becomes the internal carotid; the fourth on the left and right sides, respectively, become the aorta and the innominate artery.

More persistent in their original form, however, are the nerves. The trigeminus supplies the first arch, the facial the second arch, the glosso-pharyngeal the third arch, and the superior laryngeal the fourth arch.

The skeletal and muscular layers have a very slight importance in this respect, since their development succeeds the closure of the clefts. They consequently accommodate themselves to the fistula or tumor, whereas the nerves and arteries, being of an earlier formation, are more persistent in their original course, and consequently more useful as landmarks.

We are also to remember the relation which the tumors of the third external cleft bear to the thymus gland. Their close relation to the thymus gland is found in the fact that the ventral limb of the third internal cleft, from which the thymus is developed, is closely united with the corresponding external cleft in the fundus præcervicalis. The subsequent growth of the fœtus and the descent of the heart displace these tumors, together with the thymus gland, from the neck to the mediastinum. Such tumors as exist in the mediastinum, dermoid in character and in close relation with the thymus, are to be considered as originating in the third cleft. As before stated, in the anterior portion of the neck we have the meso-branchial space of His, bounded laterally by the opercular processes of the hyoid arch, above by the union of the opercular processes at the hyoid bone, and below by the thoracic wall which advances as a triangular fold between them.

Should any failure in union of the opercular processes with the thoracic wall or obliteration of the cervical sinus of one or other side occur, a fistula or tumor will result, which, with the descent of the heart, will be displaced more and more toward the incisura sterni. Tumors situated in the median line or laterally, having the relations of the second arch above and the third below, belong to the sinus cervicalis.

Belonging to this class of branchiogenic tumors, and situated exactly in the median line of the neck in the infrahyoid region, I have two cases to report:

CASE I.—A. Z., eight years of age, female. Admitted to the Roosevelt Hospital, Out-patient Department, November, 1885. There is no family history of congenital defects, none of tuberculosis, or syphilis. She has always enjoyed good health, and would not have entered the hospital but for the tumor.

Her mother has noticed since birth a small tumor just above the incisura sterni and in the median line. It has continued to enlarge slowly, and at the present time is the size of a lime, 5 × 6 ctm.

Examination.—The patient is a healthy, well-nourished child, with no congenital defects other than the one above mentioned.

In the median line of the neck, just above the incisura sterni, is a tumor about the size of a lime, 5 × 6 ctm. It is movable upon the subjacent tissues and apparently does not extend to any great depth. There is an indistinct fluctuation in the tumor. It is insensitive and gives her no pain. The skin over the tumor is movable and unaltered.

Operation.—Usual antisepsis. Removal by a vertical incision through the skin, and enucleation of the cyst entire. The enucleation is easily accomplished. There were no dense adhesions. It was situated between the sterno-thyreoid muscles laterally and the deep fascia covering the trachea posteriorly. Primary union. Aseptic course.

Microscopical Examination.—The contents are fluid, and consist of cholesterin crystals, fat, fatty granules, epithelial cells, and a few hairs. Sections of the wall of the cyst show that it is covered with fatty epithelial cells. The wall itself consists of several layers of pavement epithelium, beneath which more or less pyriform or cuboidal cells are seen. Finally, a layer of indistinctly rounded epithelial cells is seen just beneath the connective tissue forming the capsule. The capsule is composed of a dense connective tissue, rich in elastic fibers and vascular in the deeper portion. In its outline it is distinctly irregular just below the epithelial layer. Sebaceous glands and hair follicles are present, but sweat glands are wanting.

Case II.—D. M., aged twenty-nine, coachman, admitted to the Roosevelt Hospital, February 24, 1890.

Family History. — No tumors or congenital deformities were known.

Personal History.—Has always enjoyed good health. Denies all venereal disease. Is a slight drinker. His present trouble has existed since birth. At birth the tumor was scarcely noticeable. It has never given him the slightest trouble, but has slowly increased in size. In the last five years it has doubled in size.

Examination.—A tumor is present in the neck, extending from the symphysis menti to an inch and a half above the episternal notch. It is nearly round and as large as a very large orange. It fluctuates very distinctly and is apparently not tensely filled with fluid. The skin is not adherent. The tumor can be moved in all directions, but seems to be attached to the thyreoid cartilage.

Operation, March 1, 1890 (Dr. McBurney).—Usual antisepsis. Median incision (five inches). Superficial tissues are vascular. A distinct capsule covers it, which is composed of several layers of connective tissue not passing completely around the tumor. It is a single cyst, and there were no points of attachment except one, well to the left, passing beneath the sterno-hyoid muscle close to but not involving the internal jugular vein. Suture of the skin with silk. Drainage. Absorbent dressing. Course aseptic. Primary union. Discharged cured March 12, 1890.

Microscopical Examination (Dr. Freeman, of the Pathological Department of the College of Physicians and Surgeons).—The fluid within the cyst is viscid, brownish white, and is composed of fat droplets, irregular masses of orange-colored pigment, chlolesterin crystals, and numerous spindle-shaped bodies without structure, resembling corpora amylacea. The oval bodies vary in length from 1 to 4 millimetres. With an oil-immersion lens one can see that they are lamellated around a central portion. They do not show the reaction of lime salts, neither do they react to the ordinary tests for amyloid bodies. I consider them, however, amyloid bodies.

Cyst of the Neck.—An oval tumor measuring twelve inches (4 dcm.) in its greatest circumference. It consists of a single large cavity surrounded by a thin wall, varying in thickness from a twenty-fifth to a twelfth of an inch (1 to 2 mm.).

The cyst wall consists of connective tissue in which are some collections of fairly circumscribed lymphoid tissue. At one point a lining membrane is found, consisting of a thin layer of squamous epithelium, the inner surface of which is lined with columnar cells.

I have also to report two cases situated in the lateral region of the neck and belonging to the second cleft.

Case I.—John L., aged twenty-one, admitted to the Roosevelt Hospital, Out-patient Department, June, 1885. Family history is good. So far as the patient knows, there have been no deformities in his family. He has always been in good health. There is no history of venereal disease. The heart and lungs are normal. His present trouble has existed for eleven years to his certain knowledge. It has never given him the slightest trouble. Of late years it has grown steadily larger.

Examination.—Below the ear and in front of the sterno-mastoid muscle there is a tumor of the size of a small orange. The skin over the tumor is movable. The contents seem to be thin and fluid. Fluctuation is distinctly felt. It appears to be attached deeply, but is movable superficially. There is no heat or redness present. Except that the history points to a congenital origin, it might be easily taken for a cold abscess.

Operation.—Incision along the anterior border of the sterno-mastoid muscle. The capsule of the tumor is exposed on its anterior aspect. Anteriorly and laterally, the attachment to the surrounding tissues is very slight. Above, it is easily enucleated. Internally the capsule is closely attached to the digastric muscle (posterior belly) and styloid process of the temporal bone. Below, it lies upon but is not intimately adherent to the internal carotid artery and jugular vein. The capsule is composed of a single layer of tissue apparently, and at no point are sæpta passing from the capsule to the surrounding parts, except to the styloid process. Healing of the wound by first intention. No drainage.

Microscopical Examination.—Contents are fluid, composed of cholesterin crystals, fat, fatty granules, and epithelial cells. Section of the wall shows it to be made up of a loose connective tissue, upon the surface of which a distinct corium, papillary layer, rete mucosum, and epidermis are found. Sebaceous and sweat glands here and there were present, and in some sections were seen a few hair follicles.

Case II.—Male, aged forty, Roosevelt Hospital Out-patient Department, single, Irish, January 5, 1890. The patient states that he has been a perfectly healthy man. When younger, he suffered from a venereal disease of the nature of which he is uncertain. The present trouble has existed for more than four or five months.

Present Condition —There is a tumor situated just below the angle of the jaw and in front of the sterno-mastoid muscle, of about the size of a large walnut. It is somewhat movable, and is apparently a soft but solid tumor. No fluctuation can be obtained. Its attachments seem to be in the depth.

Operation (Dr. A. B. Johnston, Out-patient Department of the Roosevelt Hospital).—Incision over the tumor and parallel to the sterno-mastoid muscle. The enucleation is easily accomplished upon the external and posterior surfaces. It lies behind the posterior belly of the digastric and stylo-hyoid muscles, to which and to the pharynx it is more closely attached than elsewhere. The stylo-pharyngeus and glosso-pharyngeal nerves are upon the posterior aspect of the tumor, as well as the internal carotid artery and internal jugular vein.

Antiseptic dressing; drainage; aseptic course; primary union.

Microscopical Examination (Professor Prudden, of the College of Physicians and Surgeons).—Compound cyst from the neck.

Specimen consists largely of a cluster of thick-walled cysts, the largest about two ctm. in diameter. These cysts are joined together by a loose connective tissue, while between and about them are scattered several small lymphatic nodes.

The walls of the cysts consist of an external layer of dense connective tissue, inside of which is a layer—sometimes thin, sometimes thick—of lymphatic tissue. This lymphatic tissue in some parts of the cyst wall is diffuse, in other parts is massed, forming well-defined lymphatic nodules. The cysts are in places without a distinct cellular lining, but over the greater portion of the surface there is present a distinct and well-marked layer of lamellated epithelium. This is in part squamous and in part ciliated on the free surface.

From the structure and situation of these cysts I should make the anatomical diagnosis of cyst formed from the persistent remnant of the embryonal gill-cleft.

I here show to the society two exceedingly handsome drawings of this tumor, made by Dr. Prudden, which he has allowed me to show before publication of this pathological specimen in his book. Of these tumors, I believe, from their situation and relations to the surrounding parts, as well as from their microscopical examinations, that the first and third are due to the imperfect obliteration of the sinus cervicalis alone. The fourth I consider a multilocular cystoma, with an increased growth, nodular and diffuse, of lymphatic tissue about the capsules of the cysts. It is a remnant of the internal cleft at the line of the second branchial arch (Rahl's *Kiemengang*), or of this with a portion of the sinus cervicalis (the second external cleft). The third is a unilocular cystoma, but of the same origin.

Tumors or fistulæ belonging to the third cleft should have the glosso-pharyngeal nerve above them, and the superior laryngeal nerve below, when they are situated in their neighborhood. When this is not the case, they should be in close relation to the carotid or thymus gland. Of the tumors operated upon in the neck, so few have been studied and operated upon with any other idea than their removal that they can not be said to belong to this cleft, since their anatomical relations have been entirely overlooked. The situation alone of a tumor in the neck seems to have been sufficient for many to have reported it as belonging to one or other cleft according to its distance from the inferior maxilla or from the sternum. Their relations to the few important landmarks in the neck have been so obviously neglected that, from an embryological point of view, it is safe to exclude them until more careful dissections have been made. Tumors, however, occurring in the anterior mediastinum show a close relationship to the thymus gland. The fact that they may be seen deep in the mediastinum may be explained by the changes which the thymus undergoes in its development and subsequent atrophy. As there is much evidence in favor of the fact that the corpuscles of Hassell are derivatives from the epidermic layer of the third external cleft in the fundus præcervicalis, it will not be beyond a probable belief that, should the fundus præcervicalis not be erased, as normally is the case, a dermoid tumor will remain in close contact with the thymus gland, and will be found in the mediastinum and not in the neighborhood of the thyreoid cartilage.

The cases described by Waldeyer, Cordes, Lebert, and Gorden may be looked upon as tumors *probably* developed much higher in the neck originally, and as having descended later in the development of the embryo, since the region of the neck is the classical region for congenital tumors due to incomplete obliteration of the clefts. Such cases as Virchow's, consisting of a major cyst with the products of an epidermic investment and smaller cysts lined with a ciliated epithelium, as well as Stilling's case, in which a cyst lined with ciliated epithelium and mucous glands existed in the anterior mediastinum (apparently a combination of portions of the respiratory tract and dermoidal remains), are as yet simply wanting in satisfactory explanation.

Such cases, however, as Waldeyer's, where a single large dermoid cyst existed in the anterior mediastinum, compressing the right lung, and was attached by a pedicle of connective tissue containing a branch of the inferior thyreoid artery, two or more veins from the inferior thyreoid veins, and a mass of thyreoid tissue which extended to the thyreoid gland itself, certainly speak in favor of the cervical origin of some of these tumors.

Tumors congenital in origin and derived from the third external cleft should have a close relationship with the thymus gland, and should be looked for in the mediastinum anticum.

The fourth cleft is excluded from the fistulæ, as it is separated by a well-marked amount of mesoderm from the sinus cervicalis. Though dermoidal tumors may arise from the fourth cleft, still we know nothing about them positively. It is probable only that they, as well as those of the third cleft, are to be sought for in the mediastinum. The branchiogenic tumors of the neck are to be referred to epithelial deposits remaining in the clefts after their apparent closure. Their appearance at birth or in early life is an important factor in their diagnosis when it is present.

The epithelial or endothelial tissue may remain, however, without giving any evidences of its presence until some unknown irritation late in life causes its increased growth. This is of sufficiently frequent occurrence for us to say that practically for these cases our only certain diagnostic means rests with the microscopic examination.

In looking up the cases which have been so far examined microscopically, I find that the capsule is composed of a loose or dense fibrous tissue, more or less vascular and in some cases made up largely of an adenoid tissue and lymph follicles. The epithelium in the majority of cases is stratified and flat, 19–5. In the minority of cases it is cylindrical or ciliated (Monod, Dubar, Richard). In some cases both varieties have been present (Newman and Baumgarten, Gluck, Richard, and Anger).

The flat epithelium may be stratified alone or exist in several layers with a deeper layer of pyriform and irregular cells, or with a rete Malpighii and papillæ below it. Virchow has found sebaceous glands; Landeta, lanugo hair and hair follicles; Lannelongue, sweat and sebaceous glands and hair follicles. The flat epithelium on a more or less perfectly formed rete, with papillæ, sweat and sebaceous glands, is the marked characteristic of the sinus cervicalis. A cylindrical and ciliated epithelium with a wall of loose or dense fibrous and adenoid tissue refers to an internal cleft. Where both varieties exist, the tumor is the result of the rupture between the internal and external cleft and the closure of the ends. Yet too much reliance can not be placed upon the variety of epithelium alone. Posner has shown that the epithelial mucous membranes of ectodermal origin, as well as tissue doubtless of ento- or mesodermal origin, may completely undergo keratinization—*i. e.*, cornification.

Studies in the histology of the larynx show us that in the mucous membrane of the larynx the same changes exist in pachydermia laryngis. That a carcinoma should develop upon a mucous surface constantly in a state of irritation, and that pachydermia may be a precancerous condition, just as Butlin and Schwimmer have shown in reference to leucoplacia lingualis, will not strike one as extraordinary. Such a metaplasia exists in branchiogenic tumors, and such have been their ultimate results.

The contents may be serous, mucous, or atheromatous. Yet any combination of these may exist, depending upon the extent to which mucous or fatty degeneration takes place in the epithelial cells. Exceptionally, the contents may consist of blood coagula (Campenon), or of fluid blood (Gluck).

Commonly these tumors are cystic and unilocular, yet three cases have been described as multilocular (Lucke, Zahn, and Richard).

The secondary changes occurring within these tumors are quite varied.

Suppuration has been described in two cases of Richard's and one of Senn's, in which the epithelial character of the wall and the presence in the pus of epithelial cells were of diagnostic value.

Volkmann in 1882 had seen three times in the preceding ten years, in the superior triangle deep between the muscles, carcinomata which were connected neither with the skin, the pharynx, nor the lymphatic glands, in which cases no other carcinomatous formations had existed. These cases he ascribed to epithelial deposits left in persistent remnants of the branchial clefts.

Brums and Richard reported three cases.

Quarry Silcock, in an article entitled Cystic Epitheliomata of the Neck, has reported three cases.

Regnault has reported one case from the clinic of Professor Czerny, and classes two of Professor Langenbeck's cases in the same category.

Reverdin and Meyer (*Revue médicale de la Suisse rom.*, viii, p. 162) I have not been able to consult.

Campenon and Gluck have described particularly those cases where the contents were coagulated or fluid blood.

Campenon's case can be ascribed to a trauma. Gluck's case was due to ulceration through the wall of the common jugular vein in consequence of the growth of the tumor.

Moreover, the cyst wall is often very vascular, and from its capillaries hæmorrhages may occur from time to time within the tumor.

Such cases where the blood existed in small quantity only have been frequently reported. The glands within the walls of the tumor may lead to retention cysts. Zahn in one of his four cases found a multilocular cyst, in the walls of which many small cysts were present. He ascribes their formation to an epithelial germination.

Samter has described a cystadenoma as developing from the epithelium of the cyst wall, and has written of such tumors under the name of atypical lymphangeio-adenocystoma.

Roth, in a case of branchiogenic fistula in which cylindrical, ciliated, and flat epithelium covered the wall, found thirteen gland ducts which were lined with cylindrical epithelium. The acini belonging to these ducts were covered by a cuboidal epithelium.

Ribbert found in an incomplete external fistula numerous branching canals in which he obtained and examined twenty transverse sections. Their epithelium was cylindrical, irregular, and rounded, and bore upon its free surface sometimes one or more cilia to each cell. Such cases may easily explain the cysts found in the walls of these tumors as well as their multilocular character.

With any variety there may be an increased amount of adenoid tissue within the wall of the cyst. This may be diffuse or localized in masses.

Lastly, we have as a variety the teratoma, the *fœtus in fœtu*, the parasitic fœtus in a closed cervical sinus.

Tumors appearing in the submental and submaxillary triangle have been often described and placed in the category of branchiogenic tumors. Such are the tumors which appear upon the floor of the mouth and in their further growth in the submental and submaxillary triangle.

Though described under the name of the ranula suprahyoidea, they are due neither to a dilatation of the duct of the sublingual nor submaxillary, nor are they of branchiogenic origin (von Kostanecki and von Mielecki).

The tuberculum impar and the floor of the mouth do not originate in the arches, but in a space, the meso-branchial space (His), surrounded by the first two arches.

"Dermoid tumors occurring here must be referred to a time when in front of the tuberculum impar the double epithelial lamella is present, at which time, if an abnormal adhesion exists between the entoderm and ectoderm, ectodermal tissue will remain in front of the tuberculum impar, giving rise to a tumor in the floor of the mouth in front of or to one or other side of the tongue" (von Kostanecki and von Mielecki).

Lancuta has described three such cases of congenital tumors, of the size of a small orange, in the floor of the mouth, bounded by the genio-hyoid and mylo-hyoid muscles anteriorly and by the root of the tongue posteriorly. They were all lined with pavement epithelium and contained lanugo hairs.

Denonvilliers diagnosticated such a tumor, situated in the floor of the mouth on the left side, the size of a turkey's egg, the wall of which contained six to twelve layers of pavement epithelium. No glands or hairs were present. Bryck, Linhart, Verneuil, Güterbock, Despres, Hofmokl, Combalat, Barker, and J. W. Wright, of this city, have each reported similar cases in this region.

M. Buchez has reported a remarkable congenital defect in this region, in which there was a failure in union of the two maxillary branchia and a large suprahyoid tumor, the size of a cocoanut, extending from the sternum to the upper border of the inferior maxillary processes of the first branchial arches. The branchia were widely separated from one another, and the wall of the cyst was composed of unaltered skin.

More interesting, however, are the cases occurring in this region and having upon their cyst wall a ciliated epithelium.

Neumann examined a case of congenital growth in the floor of the mouth, which had pressed the tongue upward and backward, and which measured two and a half centimetres by one and a half centimetres. The cyst wall was composed of fibrous tissue, with a hyaline basement membrane, upon the surface of which ciliated epithelium was found, and the contents were a viscid fluid.

This tumor he ascribes to the persistence of a portion of the ductus excretorius linguæ (Boehdalek, Jr.).

Bochdalek, in describing this duct, says that the foramen cæcum does not end blindly, but in a canal ten to fifteen millimetres long, having a direction downward and backward toward the median glosso-epiglottic ligament.

The posterior third of this duct is well supplied with small mucous glands, and sends off one or more lateral channels downward toward the floor of the mouth, in connection with which are small and peculiar glandular coils, lined with a ciliated epithelium. These are situated in the posterior third of the genio-hyoglossi muscles, having the length of one to four millimetres and the width of a half to one and a quarter millimetre. Their secretion is a glassy white or reddish mucus.

It is a striking fact that Bochdalek, Jr., after finding small cysts in the tongue due to this cause, said at that time that such dilatations might be found to be the cause of some of the cystic tumors called ranula.

Gehé has also described a case similar to Neumann's, and Dr. John R. Hall has removed such a tumor in the Roosevelt Hospital, sections of which he has shown the author. Belonging to this variety of congenital tumors situated in the floor of the mouth and exactly in the median line, I have an interesting case to report, which was referred to me by Dr. Nicholas, of the Roosevelt Hospital Out-patient Department:

M. G., aged twenty-nine, single, male. The patient states that his grandfather (paternal) had exactly the same condition. In no other member of his family have any such tumors been present. His mother tells him that at birth he had a small tumor in the mouth, beneath the tongue, the size of a split pea. This tumor has never inconvenienced him until two years and a half ago, when it caused him much trouble in eating and rendered his speech indistinct.

Examination.—There exists in the floor of the mouth a tumor, the size of a Messina orange, which is filled with fluid, and the wall of which appears quite thick. It is situated exactly in the median line, between the genio-hyoid and mylo-hyoid muscles in front, and genio-hyoglossi muscles behind. The tongue is raised to such an extent that it rests upon the hard and soft palate. The body of the inferior maxilla is a large one, and is obliquely united to the ramus to accommodate the tumor. The tumor is pyriform in shape, extending from the inferior maxilla to the hyoid bone, with its point at the hyoid, between the genio-hyoglossi muscles. It is apparently loosely attached to the tissues, except where it is covered by the mucous membrane in the median line.

Operation.—Incision from symphysis menti to the hyoid bone, with two lateral incisions at the inferior maxillary border.

The dissection was carried down to the genio-hyoid muscles, which were divided. The sac was exposed upon its anterior aspect. It was easily enucleated from between the two genio-hyoglossi, and in no place was it closely attached, except to the mucous membrane of the mouth in the median line. Here it was necessary to incise the mucous membrane in order to thoroughly remove all traces of the sac. Suture of the mucous membrane, muscles, and deeper tissues with catgut. Suture of skin with silk. Drainage. Aseptic course.

Microscopical Examination (by Dr. Freeman). —The contents were a sero-sebaceous fluid.

The cyst wall is composed of connective tissue, in which numerous collections of lymphoid tissue are present. This wall is lined with a thick layer of squamous epithelium, beneath which is a layer of columnar epithelium. There are no hair follicles or glands present. The situation of this tumor between the genio-hyoglossi muscles in the floor of the mouth, as well as the microscopical examination which shows its wall to be composed only of a connective and lymphatic tissue, cylindrical and squamous epithelium, lead me to believe that it is a remnant of the thyreoglossal duct rather than a remnant of the ectoderm. The fact that a squamous epithelium lines the wall may be due to the metaplasia which may exist in all entodermal or ectodermal tissues. The want of hairs, hair follicles, sebaceous and sweat glands, and of a more or less perfect rete mucosum, exclude to a certain extent the ectodermal origin. In my own opinion, it is more probable that the tumor is due to this cause than to any other.

I wish to report here, Mr. President, a case of pre-auricular blind external fistula, congenital in origin, and presenting some interesting points. These fistulæ are interesting not only as embryological curiosities, but to the surgeon for their diagnosis. They may, as in this case, offer some difficulties in diagnosis in that, being inflamed or filled with secretion, they appear to us under the form of tumors or abscesses.

Betz, Heusinger, and Schede ascribe these pre-auricular fistulæ to the non-closure of that portion of the first branchial cleft not used in the formation of the ear, and give as a proof of their branchiogenic origin their occurrence with other anomalies, as auricular appendages, fissures, malformations of the membrana tympani, cervical fistulæ, etc. His believes their origin to be due to disturbances of a secondary nature in the formation of the external ear.

The external ear is a derivative of the first external cleft, whilst the internal ear is a derivative of the first internal cleft. The former, represented by the external auditory canal and the cartilages of the auricle, is an external incomplete fistula. The internal ear, represented by the canalis musculo-tubarius and the middle ear, is an incomplete internal fistula. During the formation of the external ear from the second to the fifth month there appear at the posterior part of the first cleft six tubercles. Two of these belong to the first arch—the tuberculum tragicum and the tuberculum anterius. One is a connecting piece between the first and second arches, the tuberculum intermedium. Three of these belong to the second arch, the tuberculum anthelicis, the tuberculum antitragicum, and the lobule. The cleft extends within these prominences and is continuous between the first and sixth tubercles. This continuation of the first cleft is soon closed by the growth of the prominent lateral border of the first arch (Eckwulst), which, advancing over the sixth tubercle, unites with it. The upper portion of the first cleft presents at first five, then three, incisuræ on the border of the fossa angularis. These are the incisuræ anterior, triangularis, and intertragica. By continued growth these fissures are gradually obliterated. The incisura anterior is at first represented by a shallow fossa separating the crus helicis from the crus supratragicum. The crus supratragicum sinks lower and lower in its further development, and finally disappears. Any fistula situated in front of the crus helicis can not be due to an imperfect union between the helix and tragus, but must be due to a secondary malformation in the first cleft.

The pre-auricular fistulæ are most frequently seen one centimetre in front of and above the tragus. Schede and Heusinger have reported such cases. Virchow has reported one in which the fistula was found just beneath the ear, which could be traced to the pharynx, into which it opened. No Eustachian tube was present in this case. Roser has reported a case just behind the ear and communicating apparently with the parotid duct. Besides these cases, small fistulæ have been reported by many as occurring together with supernumerary auricles, fissures, and auricular appendages.

The case I here report is one of considerable interest, in that we have a fistula which has been most thoroughly examined microscopically and found to be composed of both the interior and exterior clefts of the first arch:

An adult, aged twenty-one, single. Patient states that he has always been in good health, and that in no member of his family have there been other deformities. He states that he has been inconvenienced in a slight way for years on account of the accumulation of sebaceous matter in this region and the production of a swelling in front of the ear. This swelling he has been able to reduce by pressing out its contents. Once or twice it has been inflamed to such an extent as to give him some concern.

Examination.—He is healthy and well-nourished. Physical examination is negative. There exists in front and above the tragus about a quarter of an inch a small red elevation, in the center of which is a depression. On pressure, slight and severe, a distinct hard cord can be felt beneath the slight elevation, the end of which can not be appreciated. On introducing a fine probe into the opening surmounting the elevation, one very distinctly appreciates that it passes without force in a direction downward and inward for a distance of an inch and a half, where it apparently ends in a blind sac. There are no deformities connected with the external ear, mouth, nose, pharynx, or maxillary bones. No congenital defect is found in the neck.

Operation.—Removal. This was accomplished without difficulty, though somewhat tedious on account of the uncertainty of being able to secure all diverticula which might be present. The tract of the fistula lay behind the temporal artery and in front of the tragus, and extended inward and downward. Aseptic course. Primary union.

Microscopical Examination (by Dr. R. G. Freeman).—The specimen was cylindrical in shape, containing a central lumen or canal. At the external end was a trumpet-shaped opening into the cavity. It was cut completely into serial sections so that every part could be preserved and examined. The external fourth was cut longitudinally; the internal three fourths were cut transversely. The sections through the external fourth show that the central cavity or lumen is lined with squamous epithelium covering a skin-like structure having well-developed papillæ, some hairs, and many sebaceous glands. At the commencement of the middle third of this tube, that part of the wall corresponding to the corium contains a plate of cartilage which extends along one side of the cavity nearly to its bottom. This cartilage is situated outside of the sebaceous glands; in structure it is elastic cartilage like that of the ear. At about the junction of the middle and lower third of the tube there is a much more extensive growth of hair.

The papillæ here are much longer and more irregular, some of them dividing into two or three parts. Here also the cavity gives off lateral short branches with blind extremities. The cavity finally bifurcates, ending in two blind pouches lined with skin-like tissue, having, however, but slightly developed papillæ and no hair follicles. Near the bottom of the cavity, but before its bifurcation, a stricture is found such as can be seen in no other part of the specimen. Going out from the cavity is a straight and narrow tube lined, except near the opening, with cylindrical epithelium and surrounded by a mass of lymphoid tissue. How this accessory tube ends can not be determined, since it is cut off. The cavity of the whole specimen contains fat, amorphous material, and free hairs.

The specimen, then, in brief, consists of a simple diverticulum from the skin of the face, lined with a skin-like structure and supported on one side by a plate of elastic cartilage; the wall contains hair follicles, very numerous sebaceous glands, but no sudoriferous glands. Opening from near the bottom of the cavity is a passage lined by cylindrical epithelium and surrounded by lymphoid tissue.

This fistula, Mr. President, I consider as due to a union of the internal and external clefts of the first branchial cleft, and is a remnant probably of that portion of the first cleft which was not used in the formation of internal and external ear.

A full description of the microscopical character of this case will be made by Dr. Freeman in a separate article.

I wish to add, in conclusion, that I have just operated in another case of branchiogenic tumor of the neck belonging to the second cleft, in a child three years old. As soon as the microscopical examination is completed, the history of the case will be published.

7 West Thirty-first Street.

THE VARYING SIGNIFICANCE OF INTERMITTENT ALBUMINURIA.

REPORT OF AUTOPSY OF A CASE.[*]

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Until within very recent years the presence of albumin in the urine, if at all constant, or recurring at short intervals, was taken to indicate structural change in the kidneys. In the year 1878 Leube (1) described what he called

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[*] Read before the Harvard Medical Society of New York City, May 2, 1891.

"physiological albuminuria," or albuminuria in healthy individuals. Other observers have confirmed his statements, so that now the presence of albumin in the urine of apparently healthy persons is a generally accepted fact.

What is the pathology of this condition? The answers to this question are various. This does not seem strange when we consider how varied are the theories advanced as to the pathological significance of true renal albuminuria. Even the physiology of the normal urinary secretion is still a matter of dispute. Senator (2) and T. Lang (3) have been engaged for over a year past in a rather acrimonious controversy as to whether the fluid in the glomerulus of the kidney is a filtrate or a secretion. This may not seem a very important question, and yet upon its answer depends our conception of the nature of albuminuria. If the glomerular fluid is a filtrate, it contains albumin in the normal condition, like the other filtrates of the body, and it follows that albumin is a constituent of normal urine. If the fluid is a secretion, then the glomerulus must have the selective power common to all secreting glands, permitting certain substances to pass through its epithelium and retaining others. Without entering into a discussion of this vexed question, I will give a brief statement of the view now held by most pathologists. The epithelium of the glomerulus in the normal kidney secretes the urinary salts and water, but prevents the passage of albumin from the blood into the urine. If this epithelium suffers in any way in its nutrition, it no longer performs part of its function, and filtration of the albumin takes place. Senator (4) believes that in venous stasis albumin enters the urine through the tubules also, as the epithelium there is first affected by the increased pressure.

Such being the mechanism of the secretion of albumin, we have now to consider the general conditions which call this mechanism into play. The three factors in the production of albuminuria are:

1. Changes in the composition of the blood.
2. Changes in the blood-pressure or rate of flow.
3. Changes in the structure of the kidney.

1. *Changes in the Composition of the Blood.*—Semmola (5) is the chief exponent of the dyscrasic or hæmatogenic origin of Bright's disease. He holds that albuminuria is generally due to a dyscrasic condition of the albumins in the blood. Whenever these albumins become capable of dialysis they are eliminated from the system by all the emunctories, but mainly by the kidneys. Such albuminuria is unaccompanied by histological alteration of the epithelium of the glomeruli. The passage of these diffusible albumins does, however, cause irritation in the kidneys and, if long continued, leads to the secretion also of serum albumin, and eventually to structural changes—nephritis. He shows that the chief cause of an excess of dialysable albumin in the blood is deficient activity in the functions of the skin. We have, then, as a sequence—1, deficient activity of the skin; 2, an excess of diffusible albumin in the blood, or hetero-albuminæmia; and 3, albuminuria, which, if allowed to continue for a certain length of time, sets up changes in the structure of the kidneys. Deficient action of the liver may also cause hetero-albuminæmia. Imperfect digestion of albuminous bodies in the alimentary canal may be followed by their absorption and excretion by the kidneys in the unchanged state. An excess of urea, or uric acid, or the oxalates, may lead to the presence of albumin in the urine.

2. *Changes in the Blood-pressure or Rate of Flow.*—Albumin appears in the urine when there is diminution of arterial pressure or increased venous pressure leading to venous stasis. Increase of arterial pressure does not, as was formerly thought, cause albuminuria.

3. *Changes in the Structure of the Kidney.*—The structural change may affect either the epithelium of the glomeruli and tubules (Senator) or the blood-vessels of the kidney. As already stated, any disorder of nutrition of the epithelium will allow the albumin to pass through. Such disordered nutrition may be due to either of the causes already mentioned, a dyscrasic condition of the blood, or changes in the blood-pressure or its rate of flow.

I have thought it advisable to thus run over the various factors of pathological albuminuria, as it may help us in appreciating the varieties of the intermittent or so-called functional form.

Intermittent or "Functional" Albuminuria.—One feature characterizes all the different kinds of albuminuria not obviously dependent on organic disease—namely, intermittency in the appearance of the albumin in the urine. But pathological albuminuria is also intermittent, especially in the most serious form, the granular kidney; hence this sign alone is not sufficient for a positive diagnosis. This will appear in one of my cases in which I was so fortunate as to obtain an autopsy. Many cases of intermittent albuminuria have several elements in their causation, and any classification must be more or less arbitrary. The following is, I think, sufficiently elastic to include at least the more common varieties:

Class I. Dyscrasic.	Hetero-albuminæmia. Digestive. Oxaluric. Hepatic. Gouty.
Class II. Mechanical.	Cyclical. Albuminuria of adolescents.
Class III. Neurotic.	Mental anxiety. Intellectual effort. Excessive physical fatigue.

1. *Dyscrasic.*—Under this general heading we may include the early stages (before structural disease has resulted) of all those dyscrasic conditions of the blood described by Semmola, especially hetero-albuminæmia. In some cases the digestive system seems to be at fault. There may be oxaluria with high density of urine and excess of urea accompanied at times with traces of albumin. Or there may be congestive enlargement of the liver with catarrh; there is stasis in the portal system, the skin is dry and jaundiced, and some bile and albumin are found in the urine. All these phenomena are especially apt to be seen in gouty individuals.

Haig (6) attributes the high-tension pulse so often noted in these cases to an excess of uric acid in the blood due to deficient action of the skin. The albuminuria following a cold bath may be thus explained by the interference with the functional activity of the skin. Glycosuria also is often accompanied by albuminuria apparently secondary to it.

2. *Mechanical.*—Cyclical albuminuria probably belongs in this class, though some observers regard it as digestive in its origin. It has also been termed the albuminuria of adolescents, but it is not confined to any particular period of life. It is generally found in individuals with a weak circulation and a general lack of tone. Position is probably the most important factor. When the patient rises in the morning the circulation is weaker and the weight of blood resting on the renal veins is suddenly increased. Hence we get a condition of venous stasis, and albumin appears in the urine, usually from one to two hours after breakfast. If the patient is kept in bed until the afternoon, the albuminuria is postponed to that time. When he is up and about during the day, the albuminuria gradually ceases, because of the stimulating effect of exercise on the circulation. Herringham (7), who has made a careful study of a case of this kind, found that there was no constant relation between the absolute or relative amounts of urea and uric acid and the albuminuria. Diet had no effect whatever. Microscopically, there were no casts, but plenty of leucocytes and some oxalate crystals. Heubner (8), who has observed this affection in three sisters, states that even forced movements of the body, provided the patient remains in the recumbent position, do not cause the albuminuria. He associates it with the developmental period of the organism.

3. *Neurotic.*—In these cases there has usually been some strain of the nervous system—such as passing examinations, in which there is the combination of mental anxiety and intellectual effort. Sir Andrew Clark (9) has seen albuminuria repeatedly follow political speaking in an individual who at other times was entirely free from it. Excessive physical exercise may also be followed by traces of albumin in the urine. Both of these varieties of neurotic albuminuria are probably due to a weakened state of the renal vaso-motor centers, causing a slowing of the circulation in the kidneys with venous stasis. Of thirty-nine cases of "albuminuria without obvious disease," observed by Dr. Goodhart (10), seventeen were in persons of a markedly neurotic temperament. One suffered much from headache and was "highly nervous"; another had had convulsions in childhood; two others had Graves's disease; another was a case of general paralysis. Dr. Goodhart suggests that in such cases there may be a visceral flux, comparable to that which takes place about the surface of the head and neck and hands of the neurotic woman. Perhaps even the surface and deep parts suffer together under such circumstances. He thinks that such cases support the observations made by Dr. Allbutt some years ago, that the granular kidney seemed sometimes to owe its origin to, or date its existence from, some period of anxiety or worry. The temporary albuminuria of the neurotic may possibly furnish examples of the beginning of insidious changes in the kidney, which, if unchecked, may have a serious, even if remote, ending.

In the foregoing classification I have taken no account of "spurious" or "false" albuminuria, which originates in the urinary passages below the secreting surface of the kidney.

On studying the varieties of "functional" albuminuria it is evident, I think, that they are due to the same general conditions that are active in the production of pathological albuminuria. The dyscrasic forms are all caused by changes in the composition of the blood. The mechanical form or cyclical albuminuria may be referred to changes in the blood-pressure in the kidneys. The neurotic forms may also be attributed to disturbances of the circulation in the kidneys. And, finally, all varieties of functional albuminuria, unless arrested, will ultimately result in changes of renal structure. Albuminuria is always pathological; the nutritive change in the glomerular epithelium may be slight or only temporary, but none the less it is not a normal process. It is not improbable that intermittent albuminuria may be due in some cases to small localized foci of nephritis. Lécorché and Talamon (11) believe it to be caused by a glomerulitis limited to a few glomeruli at a time.

The systematic testing of the urine in cases of proposed life insurance has had a considerable share in changing our views as to the nature of albuminuria. My own experience with intermittent albuminuria is almost entirely confined to cases of this character. In the course of the last seven years I have examined 365 persons, mostly males, for life insurance. Of this number, 54, or 14·8 per cent., had more or less albumin in their urine. This is probably a much larger percentage than would be found in the general population. The same fact has been noted in England, and Dr. Rabagliati (12) explains it by saying that the well-to-do who apply for life insurance suffer more from urinary diseases than the ordinary population, mainly because well-to-do people eat and drink too much. For the purposes of comparison, I examined, a few years ago, the urine of 100 consecutive male patients at the Roosevelt Hospital Out-door Department. In not more than 5 per cent. did I find albumin without other symptoms of Bright's disease. I have also recently looked over the histories of a number of private patients whom I had treated for minor ailments—such as lumbago, dyspepsia, lithæmic conditions, etc. There was a record of the examination of the urine in 35 cases, including men, women, and children, and in but two cases was albumin found.

One of the two cases was an old gentleman eighty years of age, who probably had some arterio-sclerosis of the kidney. The other case was a nervous lithæmic boy, in whose urine I at times found a trace of albumin, associated with crystals of uric acid and oxalate of calcium. His albuminuria may have been cyclic in character, but at that time my attention had not been called to this phenomenon.

The average age of the other thirty-three patients was but thirty-one years, which may account in a measure for the absence of albumin.

Returning to the fifty-four cases observed among applicants for life insurance, forty-nine were at the time thought to be cases of organic disease, and in five the albuminuria was attributed to a temporary derangement of function. The average age of the fifty-four cases was forty-four years. Of the forty-nine organic cases, thirty-five were called chronic nephritis, one subacute nephritis, four albuminuria associated with phthisis, three albuminuria dependent on glycosuria, and six persistent albuminuria of uncertain cause. The supposed "functional" cases I will give somewhat in detail:

Case I.—Mr. B. W., banker, aged fifty-five, five feet ten inches and three quarters in height, and one hundred and fifty-three pounds in weight. He has always enjoyed good health, with the exception of an attack of gout in the big toe of the right foot fourteen years ago. His family history is excellent. His physical condition seemed perfect until I examined his urine, in which I found a trace of albumin by both the heat and nitric-acid tests. The specific gravity was 1·018; there were no casts or epithelial cells. Taking into account his personal history in connection with the albuminuria, I made the diagnosis of gouty kidney. He protested that he had never had a symptom referable to any such disease, and thought that perhaps the albuminuria might be due to his habit of eating three raw eggs for breakfast every morning. I was rather skeptical as to the value of his suggestion (this was in July, 1885), but told him to give up his raw eggs and come and see me again in a few months. He returned in the following November, and his urine was free from albumin then and on several subsequent occasions when I tested it. He is still alive, and apparently in good health.

This case answers perfectly to Semmola's description of albuminuria following hetero-albuminæmia. The gouty taint present was undoubtedly an important factor in the imperfect digestion of the eggs. Whether the albumin in the urine was the unchanged egg albumin or serum albumin I have no means of deciding. At all events, the renal irritation had not apparently gone so far as to set up nephritis.

Case II.—Mr. J. L., hat merchant, aged twenty-six, of fair physique. Personal and family history excellent. Examination of the urine showed about one fourth per cent. of albumin, the specific gravity was 1·022, and urea and urates were in excess. Later tests gave no albumin, but a continuance of the high specific gravity and excess of urea. On the last examination albumin was absent, the specific gravity was 1·030, and quantitative analysis gave thirty-three grammes of urea in the twenty-four hours' urine.

This case also apparently belongs to the dyscrasic class of intermittent albuminuria. Whatever changes may have taken place in the glomeruli, it is probable, from the amount of urea, that the tubules of the kidney are in good condition.

Case III.—H. D., ship-captain, aged thirty-nine, apparently in robust health. Family and personal history negative. A faint trace of albumin was found by both tests in the urine. The specific gravity was 1·020; there were no casts. He stated that he had had no sleep at all the night previous, being busily engaged in loading his ship. Subsequent examinations of the urine were negative.

Case IV.—M. L., physician, twenty-nine years old, slender and of rather nervous temperament. Record perfect, except the death of his father from Bright's disease at sixty-one years of age. On examining the urine, I found a trace of albumin by the heat test only. The specific gravity was 1·022. He was much surprised when I informed him of the fact, as he had often examined his urine himself with negative result. He said that he had been doing a good deal of hard mental work recently, but was not conscious of any unusual fatigue. I made repeated tests afterward of the urine, but failed to discover any albumin. I therefore accepted the risk, though with considerable misgiving. This was in September, 1886, and he still appears to be in excellent health, in spite of incessant work in his profession.

Cases III and IV probably represent the neurotic type of transitory albuminuria. The pathology of this type is not very clear, and in this it may be said to prove its title to be classed with other neuroses.

My next case is more complete than those preceding, in that the clinical observation is supplemented by post-mortem examination.

Case V.—Mr. J. T., commission merchant, aged forty-one, of unusually fine, healthy appearance. He was six feet in height, and weighed two hundred and three pounds. The family history was excellent. There had been no previous illness, nor were there any present symptoms of disease. Physical examination was negative. I examined his urine with great care, as he reported that albumin had once been found in it. Of eight specimens examined during a period of six months, seven were absolutely normal in every way, while in one there was a faint trace of albumin, only evident on filtering the urine and by the heat test. The specific gravity varied from 1·018 to 1·024. At that time (the summer of 1886) I was not in the habit of measuring the amount of urea present in the twenty-four hours' urine, relying upon the specific gravity as an indication of the eliminative powers of the kidney. There were no casts of any kind. In November, 1886, this man committed suicide by morphine, after insuring his life in various companies for a very large amount.

The circumstances surrounding his death were such that a post-mortem was required, and, fortunately, it was made by an expert pathologist, Dr. W. W. Gannett, of Boston. The record of the autopsy is as follows: Body large, well developed, well nourished. Brain and heart normal. Lungs, liver, and kidneys all show excess of blood. Aorta showed in intima numerous opaque, yellow, elevated patches and calcareous plates.

Microscopic Examination.—Kidney: marked vascular injection of glomeruli. Epithelium of convoluted tubules contained a small amount of fat in minute but distinct drops. The glomerular capsules thickened by fibrous tissue in concentric layers. Here and there small areas of round-cell infiltration.

Diagnosis.—Venous engorgement of lungs, liver, and kidneys. Chronic aortic endarteritis. Slight degree of *chronic* nephritis.

In this last case we have a man apparently in perfect health and who probably would have lived for years. The slight albuminuria, only found after filtering the urine, might well have been called functional and attributed to deranged digestion or disturbed innervation or altered conditions of the blood. And yet the autopsy showed commencing nephritis as well as marked degeneration in the vascular system. None of the cases reported by the various writers have been under observation for more than a few years, and I have found no record of an autopsy in any case.

My own feeling with regard to intermittent albuminuria is, that the derangement of function will sooner or later end in structural change in the kidney. This impression is strengthed by the observations of Lécorché and Talamon (13). As a result of their extended pathological investigations they state that Bright's disease, of whatever form, develops, as a rule, intermittently, by acute periods of inflammation interrupted by remissions more or less complete. The remission may last for years; the albuminuria may even entirely disappear—a fact to be explained by cicatrization of the lesions of the glomeruli and their complete atrophy.

Such cicatrization in the kidneys seems the more possible in view of the results obtained in recent years by careful post-mortem examination of the lung tissue in all hospital patients, without regard to the cause of death. It is now well established that about sixty-five per cent. of all cases give evidence of old inflammatory processes which have entirely healed, leaving only a fibrous cicatrix.

I will add, in closing, that when I have spoken of albumin I have included in the term both of the two chief proteids of the blood plasma—serum albumin and serum globulin. They are both present in all forms of albuminuria, though in varying proportions, and react alike to the usual chemical tests. It has been stated that functional albuminuria is characterized by the high proportion of serum globulin, but D. Noel Paton (14) has proved that such is not the fact.

In cases of albuminuria of doubtful origin I now habitually make a quantitative analysis of the amount of urea. If the individual is excreting from twenty to thirty grammes of urea daily, it is evident that the urinary *tubules* at least are not seriously affected.

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THE CHEST DEVELOPER;

An Apparatus adapted to correct Thoracic Asymmetry and to restore Proper Function to the Respiratory Mechanism.

By GEORGE H. TAYLOR, M. D.

It is well known that the mechanical capacity of the chest is far in excess of its ordinary function; that the twenty or more cubic inches of air exchanged at each respiratory act during quiet is easily increased by vigorous exercises, by strong voluntary effort, and by other means of incitation, to ten times that amount. Nature, therefore, provides a very large excess of capacity of the breathing function beyond its ordinary use available for emergencies. This surplus capacity is highly valuable in therapeutics.

It is also open to observation that the extent of the motion of the chest incident to the respiratory act is not necessarily uniform and equal in all parts of the chest. A variety of causes—vocation, habitual position, nervous defects, disease, etc.—may restrict muscular power, and the consequent participation of some portion of the chest in the respiratory act, while other portions are consequently forced to engage in excessive action and expansion. For example, the greater part, even the whole, of the change of air space may occur at the right or the left side, at the top or the bottom of the chest, while the remainder participates but little, perhaps not at all, in the process.

These statements are confirmed in several ways. The most abundant and conspicuous instances are of the pathological order. Disease of a portion of the lungs partly, sometimes wholly, excludes respiratory changes in the diseased portion, a fact easily recognized by defect or absence of motion of the chest-walls over the diseased site. In deformities of the chest and spine the air change in the convex or bulging portion often greatly exceeds that of the shrunken part. Finally, it is well known that certain vocations and certain prolonged, fixed positions of the body, which involve excessive use of a part of the muscles of the chest and restraint of other muscles, are certain, when sufficient time is given, to produce unequal development of chest space and of the chest walls which control the chest space.

Now, the fluctuations of chest space, whether normal or otherwise, are produced solely by the mechanical movements of the walls which inclose the space. The instances above noted of irregular and partial expansion of the chest may be due at times to excessive actions of local muscles, but it is more generally due to *defective* action and deterioration of power of some part of the respiratory mechanism. In some one direction or other there is partial, perhaps complete, inhibition of natural respiratory movement; this indicates loss or defect of the power which moves, involving both the involuntary and the voluntary control of the function.

This condition is clearly *abnormal.* Whether the fault is functional only, or is associated with well-developed pathological features, it is clearly outside the scope of medicinal remedies. Thus the ablest physician finds himself confronted by pathological phases of the gravest moment, for which ordinary remedies have no adaptation. He may medicate the diseased lung, but how about the absence of motion of the overlying chest wall, the default of which prevents the "cure" from doing any good? In case of deformed spine and chest, how are shrunken and useless air cells of the flattened side to be restored under continued defective functional movements of the adjacent chest wall?

The therapeutical indications are clearly manifest in the nature of the defect, whether it be regarded as purely functional or as having acquired specific pathological forms. It is plain that the mechanical phase of the defect of direction and extent of chest movement admits of mechanical aid and re-enforcement. Such aid is, indeed, frequently invoked, but generally in so clumsy and inadequate a manner as to practically fail of its specific purpose.

The *inferior* wall of the chest has far more extended physiological relations than its side walls. It follows that corresponding extended and complicated pathological consequences arise from defects of function of this part of the chest walls. This is because while side walls are exterior boundaries, the inferior is not. Instead of beating against the air, its motions, in respiration, are propagated through the visceral mass in reaching the bodily exterior. It is reasonable to infer that this mechanical arrangement is an indispensable part of Nature's plan in the physiological system; that defective function of the inferior wall and the insufficient motor waves in visceral parts, at least borders on pathology and superinduces decided pathological consequences. To show that this defect of function, as well as its consequences, is remediable by means direct and unequivocal, is therefore of unbounded therapeutic importance.

The instrument of which a description follows is adapted to serve the several purposes above noted in a therapeutic degree. This will appear from a detail of its parts and mode of action.

A standard or post, as shown in Fig. 1, having an upward extension by means of a slide and ratchet, is fixed to the floor. The top of the sliding part bears a short, horizontal pad, B, for adjustment to and support of one's back or side. The acting part of the instrument is the pendulum, A, pivoted to the standard, opposite the pad. The weighted end of the pendulum just escapes the floor in swinging. A lever, C, bearing the transverse handle, D, is ratcheted to the pivoted end of the pendulum, and may be adjusted to the pendulum at any angle, according to the capacity of the patient, and also to the height of his upstretched hands.

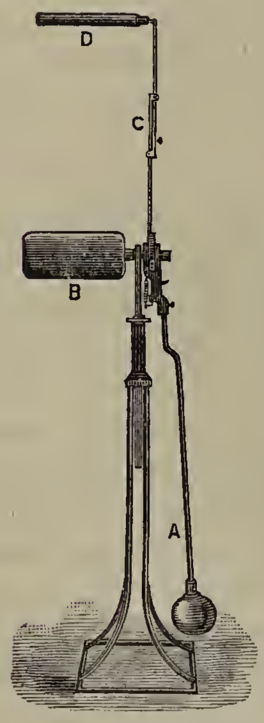

Fig. 1.

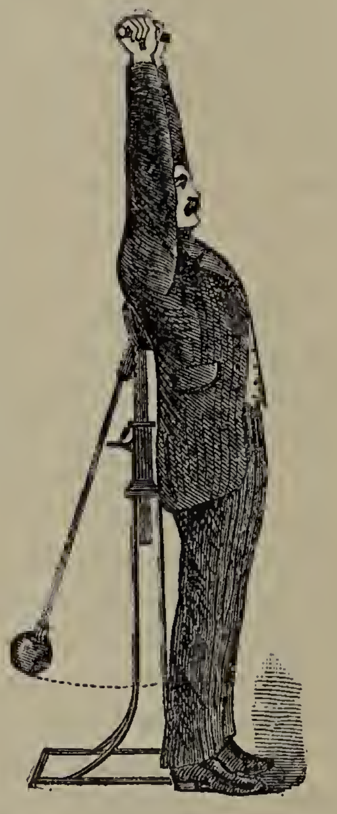

Fig. 2.

The *action* of the instrument and the mechanico-physiological and consequent therapeutic effects thereby secured may now be rendered intelligible. After adjusting the pad to the lower border of the shoulder blades and the handle to the height that it may be comfortably grasped, the user or patient imparts a slight impulse to the lever, which causes the pendulum to swing backward, the weight rising in the arc of a circle, whose radius is the length of the pendulum, to an extent proportioned to the pimulse. The force of gravitation immediately returns the pendulum, and, acquiring momentum equal to the impulse, it passes the perpendicular and describes another arc in front equal to that behind. The forward extension of the swing carries backward the lever, hands, and arms, with considerable force. In this process the pad is made a fulcrum, over which the chest is bent through the leverage afforded by the extended arms. The momentum of the falling weight is so much force expended in whatever muscles are exposed to the action. It is evident that by placing one side instead of the back against the pad, and grasping the handle with one instead of both hands, the effects will be received by one lateral half, in place of the whole anterior portion of the body. In many cases this use of the instrument is to be preferred.

After the first impulse is given, the pendulum continues to swing almost independent of effort. The action is non-fatiguing, imparts only agreeable sensations, and one is inclined to continue its use indefinitely.

The mechanico-physiological effects may now be briefly analyzed. The tension of chest muscles and tendons caused by the returning swing mechanically urges apart the side walls of the chest, and thus increases the circumference to the extent of three or more inches at the turning point of the excursion of the pendulum. This greatly distends the diaphragm. Simultaneously the lower borders of the ribs are raised, and the diaphragm is consequently forced to a higher position.

This increase of transverse measure at the base of the chest does not materially increase its inclosed space, for its perpendicular measurement is proportionally diminished. The form of the chest is changed, being *flattened* from below upward.

The muscular tension involved in the process is continuous, and becomes a practical inhibition of motion of the side walls of the chest. Respiration is now maintained only through changes of place of the *inferior* chest wall. The diaphragm and its associated muscles engage in the respiratory rhythmic motions, to compensate for the lack of those of the side walls, and, under the circumstances, even to a greater extent.

The mechanical consequences are readily understood. While the side walls are motionless, the *inferior wall* is resolved into a huge piston, working perpendicularly in the cavity of the trunk. It rises and falls with each swing of the pendulum. The action of the instrument guides the direction and dominates the extent of the respiratory acts.

Even more significant are the mechanical effects *below* the diaphragm. The upward movement of the inferior wall of the chest causes the mass below it to closely follow—the same effect as is everywhere observed of piston movements. Such motion in an inclosed space produces what is known as *suction;* technically, as *aspiration;* in scientific language, tendency to vacuum; and is instantly supplemented by atmospheric pressure at the whole exterior below the diaphragm. The mechanical effect of this pressure is inversely as the resistance; and as the exterior of the abdomen and the inferior wall of the pelvis are practically non-resisting, the principal mechanical effect is exteriorly manifested at these points.

The inevitable consequence of these wall movements is that the contents—the visceral mass inclosed by the walls, whether abdominal or pelvic, solid or fluid—are impelled upward. While the space remains completely filled, the whole mass below the diaphragm has been urged to a more elevated position, and all, even the minutest portions of the contents of the common cavity, have participated in this mechanical effect.

A proper estimate of the therapeutic value of modifying the direction and the form of the respiratory act by the use of the instrument requires that each of the several consequences be separately considered. The most obvious of these is the special cultivation of defective muscles, for which the instrument is adapted. The muscular action is either semi-active or passive, and therefore causes no perceptible fatigue. It increases the nutrition of the muscles selected for the process without inordinately increasing waste. It is therefore adapted to the feeble—to any one, child or adult, who can, by the help of the handle, maintain the erect position. The muscles are *pulled* by the swing of the pendulum, and nutrition therein is superinduced.

Suppose, for example, it be desired to correct thoracic asymmetry with or without curvature. The bulging or over-developed side of the chest is applied to the pad, while the hand of the opposite or shrunken side grasps the handle and causes the pendulum to swing. The muscles related to the defect are set in action, the tendons are made tense, the side wall of the chest is drawn out, the ribs assume a more obtuse angle with the vertebral column, the local chest space is increased and is filled out by the previously contracted portion of the lung. The consequences ultimately appear in gradual but permanent correction of deformity of chest and spine, through the rehabilitation of lost powers.

The *time* factor of the process should be duly appreciated. The action of the pendulum and its effects are completed by a return swing. The excursion is performed in accurate, unvarying time. Neither effort on the part of the patient, nor the lack of effort, causes the least variation of the time-rate. Now, it is interesting to note that this rate corresponds with that of ordinary respiratory rhythm. The consequence is that the motion imparted to the inferior chest wall, and the involuntary motion of respiration, fall together; they are conjoined in one act—the same act. The instrumental and the physiological processes, both involuntary, become merged and inseparable. It follows that the use of this or similar form of apparatus serves to cultivate the respiratory mechanism, restore its natural degree, and raise its efficiency to the physiological standard.

Of even greater therapeutic significance is the change which is easily and surely superinduced in the *direction* of the respiratory movements by the use of the instrument. This effect has above been shown to be due to the more or less complete fixation of the side walls, compelling extreme functioning of the *inferior* or diaphragmatic wall of the chest. The consequence is, extension of respiratory rhythm in the axial instead of the transverse dimension of the trunk. The respiratory wave now penetrates all the viscera, including those of the pelvis, and the movements of the inferior chest wall are wholly represented at the anterior abdominal and inferior pelvic boundaries.

The visceral mass in the cavity of the trunk, including that of the pelvis, are, through the operation of the forces described, subjected to *vertical rhythmic oscillation* to an extent corresponding with the swing of the pendulum, for the *depth* as well as the direction and time of the act is now controlled by the instrument. The patient can, however, vary the degree of the act at will to suit his desires.

The vertical motion superinduced includes the contents of the venous blood and lymphatic vessels of every size. It is decidedly and powerfully *aspiratory* in relation to these vessels. The least upward motion of the inferior wall of the chest produces a difference in the degree of compression between the proximal or upper segments of these vessels and their distal segments. An upward flow of their contents is therefore a mechanical necessity. The return flow continues synchronously with the respiratory impulse and is proportioned to its extent. The constant repetition of the impulse, modified by the vascular elasticity, insures continuous flow, and practically and promptly extracts all fluids entering these vessels.

The portal division of the venous circulation enjoys the advantage of being more exposed to compression from combined muscular contraction and atmospheric pressure, and the aid of valves is therefore unnecessary. The mechanism of the combined aspiration and compression and their effects are of such therapeutic importance as to justify being somewhat dwelt upon.

Physiologically, the expansion of the chest and the coincident contraction of the lower part of the abdominal and pelvic spaces is but a single act; for the mechanical tension which separates the side walls and distends the inferior wall by being continued below the diaphragm, produces contraction or tension, which *diminishes* the subjacent abdominal space. The space at the *upper* part of the cavity is increased while that at the *inferior* part is proportionally diminished. The contained mass is necessarily urged by this act *into* the freer space above and *from* the narrowed space below.

The therapeutic importance of understanding the functions of the inferior wall of the chest requires that it be properly understood, for thereby much of the local medication so freely bestowed on localized diseases of these organs may be obviated. Further explanations and illustrations of the principles involved may therefore be justifiable. It is not necessary to imagine that the whole column of venous blood and lymphatic fluids are directly lifted to the chest, or that the vessels are squeezed like the bulb of a syringe. It is only needful to reflect that respiratory rhythm produces a series of *lowered resistances* toward the chest; that even minute differences of pressure between the proximal and distal segments of these vessels determines the direction of flow of their contents, and that this is secured by the respiratory mechanism, acting through the inferior wall of the chest; and that not the least important of the functions of this mechanism is to secure complete, uninterrupted, and never-failing drainage of the pelvic viscera under all circumstances of health and of local disease of any of the pelvic organs. It is thus seen that any gain at the thoracic segment of the conduits for fluids secures movement of the contents of the whole line. The minutest and most distant pelvic capillaries are, in health, constantly subjected to the mechanism which effectually and completely removes all superfluous contents of whatever nature. This physiological provision obviates local accumulation of fluids, stagnation, surrender of vital control, and the chemical degeneracy that would otherwise be inevitable. The utility, indeed the necessity, of assistance for securing these ends, by means typified by the instrument whose operation is above described, is obvious.

The *grosser* therapeutic uses of the instrument are therefore the correction of misdirected respiratory rhythm, the consequent drainage of pelvic organs through physiological channels, and the submitting of local morbid ingredients to the organic chemistry through the circulation.

The radical therapeutics of well-defined pathological states in advanced stages of development is practical extension of the same agencies. We may safely take the purpose of the average therapeutist as pointing out the true remedial indication. He uses such means as he has to *remove* some local superfluity, excess, or degeneracy. Now, this something to be removed can exist as a local concrete entity only because of antecedent defect of the mechanico- and chemico-physics of the vital organism, as relate to pelvic organs. The consequence is, local residual ingredients, in process of chemical deterioration.

The turgescence of the parts proclaims defective outflow of interstitial ingredients into the capillaries permeating the diseased mass. But outflow from tissues is infallibly assured by vascular onflow, for the superficial area of capillary walls is far greater than their transverse area. It is therefore plain that *absorption* is proportionally in excess of inflow from the arterial side, when the conditions above defined—viz., aspiration and contraction accompanying rhythm of the inferior wall of the chest—are present.

The principle involved in local imbibition by returning vessels is well illustrated in Liebig's writings, in the experiment of causing water to flow through a segment of fowls' gut, arranged to traverse a vessel filled with water. It is shown that the *whole* of the water exterior to the animal membrane penetrates it and joins the outflowing stream. The conditions which control the emergence of interstitial fluids of the pelvic organs are similar to those above referred to. The pelvic tissues may be drained completely by employing the physiological mechanism adapted to secure venous outflow. The means pointed out only need to act with sufficient persistency, to be fostered into a habit by adequate cultivation, and perhaps to be slightly exaggerated, to comply with the more urgent therapeutic demands.

To amend the vito-chemical deterioration of an important organ is always a perplexing problem for the therapeutist. This problem is greatly simplified by the energetic oxidation superinduced by the processes of the instrument described. A larger proportion of systemic residuals become oxidized to the emergent forms. Imperfect products of waste, obstructive and inimical ingredients, are rendered bland and innocuous under the suitable degree of physiological oxidation. This, in fact, is the indispensable condition for health; and the restoration of the oxidizing function is obviously essential for successful therapeutics. The cure of disease that is being constantly reproduced can not advance very rapidly, however suitable the remedy may otherwise be.

The aid afforded by the instrument is not only general, *but reaches, with therapeutic energy*, the diseased tissues. For arterial blood, bearing abundance of oxygen both in solution and in loose combination, readily parts with this element in favor of *unstable* ingredients whenever contact occurs. This is the physiological mode of maintaining, therefore of restoring, organic integrity. Unstable, *noxious* matters are thus normally reduced to innocuous, emergent forms, wherever in the vital system such contact be had.

This therapeutic end is secured by simply causing arterial blood to pervade the diseased parts. Indispensable to this object is the venous and lymphatic outflow, easily and thoroughly secured by the process which has been detailed. It is hence seen that healthy local nutrition, in distinction from perversion of the nutritive process, and the removal of local impediments thereto, are in a sense identical. Nature's provisions for maintaining the health of the pelvic organs and tissues in male and female are physiologically abundant; her provisions for restoring health which inhere in the physiological mechanisms appear to be equally ample. It is due that these parts be the healthiest of the vital organism. It only requires that this inherent mechanism and its uses be better understood by those whose profession and interest lie in that direction.

FIVE CASES OF SUPRAPUBIC CYSTOTOMY.

By CHARLES S. HAMILTON, M. D.,
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CASE I. *Chronic Cystitis; Epicystotomy and Drainage; Cure.*—E. S., aged forty-five, Chillicothe, O., had had cystitis, following gonorrhœa, for fifteen years. He had neither stone nor stricture. His urine contained constantly a moderate amount of pus. Urination was frequent and exceedingly painful. At times he was compelled to empty his bladder every fifteen minutes, and he commonly urinated about thirty-five times in twenty-four hours. From constant suffering and loss of rest he was much reduced in flesh and strength. In January, 1889, he was admitted to Mount Carmel Hospital, and for two months the usual treatment of such cases—rest in bed, regulation of diet, and irrigation of the bladder—was resorted to with but slight improvement. Every attempt to be on his feet was speedily followed by a recurrence of symptoms. Accordingly, suprapubic cystotomy with drainage was advised and performed. The colpeurynter was filled with five ounces of water and the bladder distended with twelve ounces. After the bladder had been opened in the usual way, examination of its interior with the finger revealed nothing but hypertrophy of its walls. The vesical wound was closely stitched with gut about a rubber drain, which issued through the cutaneous incision, and a smaller drainage-tube was inserted in the prevesical space. For a day or two afterward the presence of the tube seemed to cause great pain, but from that time it occasioned no great suffering. At the end of six weeks it was removed, and a week later the sinus closed. When the patient was discharged he was urinating painlessly from eight to twelve times in twenty-four hours. His urine still showed a few pus corpuscles on microscopic examination. Within three months he gained twenty-five pounds in weight. His relief continues up to the present time, two years since the operation.

Case II. *Chronic Cystitis of Unknown Cause; Epicystotomy and Drainage; Moderate Benefit.*—E. P., aged twenty-eight, farmer, Harrisburg, O., had suffered from cystitis for six months. He urinated about twenty-five times a day. His urine contained mucus and so large a quantity of pus as to suggest pyelitis, though other evidences of that disease were lacking. He had never had gonorrhœa or syphilis, and nothing abnormal could be detected about prostate or testicle, nor was there any tenderness or enlargement of either kidney. His family history was good and his lungs were sound. As in the preceding case, ordinary remedies for cystitis were used for six weeks in the hospital and by the patient at his home for several months subsequently. As his condition remained about the same in spite of all treatment, he returned to the hospital in September, 1890, a year after the onset of the disease. Suprapubic cystotomy was done, as in Case I, except that the rectal bag was not used. No abnormity of the interior of the bladder could be detected by the finger. Drainage was continued for two months, and during this time the tube occasionally caused pain when not in proper position. The pus steadily diminished for six weeks, but did not entirely disappear. At the time of his discharge it amounted to about one fourth of its former quantity. Since his leaving the hospital the patient's condition has remained about the same, some pus in the urine, and the benefit from the operation is moderate. From the course of this case it seems to me likely that, sooner or later, tuberculosis of some part of the genito-urinary tract will be discovered, though hitherto careful investigation has yielded only negative results on that point.

Case III. *Chronic Cystitis and Traumatic Stricture of Urethra; Epicystotomy; Cure.*—G. P., Circleville, O., aged sixteen, in September, 1889, while riding a race, was thrown, the horse falling on him. After being taken to his house, blood escaped from the urethra, and he found that he was unable to urinate. Attempts to catheterize him failed, the instrument meeting an obstruction in the membranous urethra. For four days all urine was removed by suprapubic puncture. Finally he succeeded in passing water, but suffered from cystitis and stricture until February, 1890, the date of his admission into Mount Carmel Hospital. His urine then showed an abundant sediment, consisting of pus and mucus, and he had lost twenty pounds in weight. The case seemed to be one of traumatic stricture of the membranous urethra, due to laceration at the time of his accident. Under treatment he gained measurably in flesh and strength; but, after many trials, no instrument, large or small, could be carried into the bladder. Four weeks after his admission it was decided to perform epicystotomy, as a remedial measure for the cystitis, and also to allow retrograde catheterism when external urethrotomy should become necessary. The operation was done without the rectal bag, the patient retaining his urine for two hours and a half before being anæsthetized, as artificial distention of the bladder was impossible. A drain was left in the bladder for three weeks, during which time the patient showed great improvement. External urethrotomy without a guide was then attempted. An incision was made in the perinæum, upon a sound which had been carried up to the stricture, and the urethra was opened. The orifice of the stricture could not be found after a long and careful search. The suprapubic opening, which had contracted somewhat, was then enlarged, and a sound was guided by the finger through it into the vesical orifice of the urethra until the stricture was encountered. The dense cicatricial mass constituting the stricture was then freely divided from the perinæum until the point of the sound was reached. Thus the continuity of the urethra was re-established and a catheter readily introduced. The instrument was left in the bladder until the perineal wound had partially healed. Dilatation was maintained by the use of sounds every five days afterward. Four weeks later the boy was discharged, and is well up to the present time, though, in accordance with my directions, he still practices dilatation occasionally.

Case IV. *Stone; Epicystotomy; Cure.*—C. D., aged twenty-one, painter, Piqua, Ohio, had suffered from frequent urination for many years. Twelve months before his admission into Mt. Carmel Hospital the diagnosis of vesical calculus had been made. Removal by suprapubic operation was also unsuccessfully attempted at that time. Upon his admission the stone was measured by a lithotrite, and its diameter found to be an inch and a quarter. Although the instrument was used with the utmost caution and gentleness, hæmorrhage and a high grade of urethral fever followed. It was therefore decided to cut for the stone rather than crush it. On September 27, 1890, the bladder, having been distended with twelve ounces of water, was opened above the pubes, no rectal bag being used. There was some difficulty in extracting the stone without undue violence, for its surface was rough and caught readily in the vesical mucous membrane. The wound was closed by loose stitches through skin and muscular structure, small drains being kept in the bladder and prevesical space for a few days. Convalescence was uneventful, and in five weeks the wound was entirely healed. The stone is a mulberry calculus, weighing 419 grains. Cystotomy was chosen in this case in preference to crushing on account of the seeming intolerance of manipulation in its interior which the bladder manifested.

Case V. *Stone; Epicystotomy; Cure.*—W. W., aged seventy-three, merchant, Piqua, Ohio, entered Mt. Carmel Hospital in March, 1891. He had had symptoms of cystitis and enlarged prostate for three years. During this time there had been occasional hæmaturia and severe pain in the head of the penis. He urinated about once an hour day and night. Examination of his urine showed pus, mucus, and a large amount of albumin, but no casts. He suffered from urethral fever almost constantly. Examination of his bladder with the Thompson searcher revealed the presence of a stone, which, however, was not measured. It was decided to resort to cystotomy in preference to crushing, for three reasons. In the first place, an enlarged prostate may render a crushing operation tedious and difficult, and again the cutting operation would afford an opportunity of removing the hypertrophied portion of the prostate as well as the stone, if such a proceeding seemed advisable. Lastly, it was believed that the high operation could be completed in a very short time, rendering it necessary to use only a limited quantity of the anæsthetic—a very important consideration in view of the large amount of albumin in the urine. On April 5th the patient was anæsthetized and the bladder opened above the pubes. A rectal bag holding five ounces was used in the operation. Three smooth stones were readily scooped out with the finger. The prostate was then examined. That portion of it lying above the urethra was hypertrophied, and projected into the bladder. The enlargement had a shape similar to the half of a hen's egg, and was sessile. Such being the case, its removal hardly seemed justifiable, especially as the patient had never been dependent on the catheter. Sutures were inserted loosely in both bladder and cutaneous wound, and a drain left in the bladder for a week. With the exception of some fever, due to sloughing of prevesical connective tissue, recovery was uneventful, and the patient was discharged April 30th, though the wound was not entirely closed, some urine escaping through it occasionally. The stones are smooth, of equal size, and their combined weight is 464 grains. The operation occupied thirteen minutes. At the time of leaving the hospital the patient was free from pain, and emptied his bladder on the average once in three hours, and his urine contained no albumin or pus.

The after-treatment in these cases included ordinary antiseptic measures about the wound and frequent irrigation of the bladder with boric-acid solution. In none of them was the peritonæum wounded, though two of the operations were performed through the scars of former attempts.

In conclusion, permit me to mention a few points suggested by my experience in this operation.

1. Chronic cystitis not dependent on tubercle or cancer may be cured by suprapubic drainage.

2. The use of the colpeurynter is not essential to the convenience and success of the high operation. In some cases the fingers of an assistant in the rectum will answer quite as well. The effect of the rectal bag is to raise the distended bladder against the abdominal walls, which can be readily appreciated if the colpeurynter be filled while the distended bladder is exposed.

3. Suprapubic cystotomy with retrograde catheterization may be an important adjunct to external urethrotomy without a guide.

4. A sufficient elevation of the peritonæum may be secured in many cases by injection of the bladder with ten or twelve ounces of water.

THE TREATMENT OF GASTRIC ULCER BY RECTAL ALIMENTATION.

By C. H. ROBINSON, F. R. C. S., M. R. C. P. I.,
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It is a well-recognized law of surgery that a part inflamed should be set at rest, and in the same way where an ulcer of the stomach is present, if food is taken by the mouth the movements of that viscus and the changes caused by digestion must necessarily tend to destroy the cicatricial tissue which may exist. It follows from this that, where circumstances permit, the inflamed and ulcerated part requires rest until such time as a reparative process has been established. This is a common-sense view of the matter, and of late the treatment of gastric ulcer has been successfully carried out by stopping all food by the mouth, and relying on rectal nutritive enemata for supplying the necessary nourishment.

In July of last year a lady, aged twenty-eight, married, with three children, who resided in the County Wexford, came under my care with the principal symptoms of gastric ulcer, and whose illness had lasted about four years. She had been treated by several physicians, but showed no improvement, and her case was regarded by all whom she consulted as one of ulceration of the stomach. She suffered from vomiting, which mostly occurred night and morning; after eating she was obliged to lie down to try and prevent the contents of the stomach being ejected. The pain, which was localized to one particular part of the epigastric region, came on in paroxysms, was increased by pressure, by food, by exercise, and by mental anxiety. When brought on by food it lasted about an hour and a half, vomiting giving relief, while it was lessened by lying down. On making a careful examination, no tumor could be detected.

I prescribed a mixture containing pepsin, bismuth, and hydrocyanic acid with morphine, food to be taken in very small quantities and such as would be easily digested. In a few days she returned to her home, and I did not see her until the 30th of September, when I found that, although somewhat improved, she still suffered a good deal. Some cases of gastric ulcer published in the *Lancet* at this time interested me considerably, and I determined to use the same method of treatment—viz., by rectal nutritive enemata, withholding all food from the mouth. I explained the *rationale* of this method of treatment to my patient, and she agreed to be guided by me.

On the 4th of October, her weight being eight stone ten pounds the previous day, she commenced using enemata of "Caffyn's liquor carnis" and milk every fourth hour, every second day using once a dessertspoonful of brandy in a wineglassful of milk instead of the usual dose of liquor carnis, all food by the mouth being strictly forbidden. On the evening of the 9th of October the pain, which had been absent ever since she commenced this treatment, returned for a short time, which she attributed to having sucked a lozenge, but it did not again recur, and on the 17th of October, the fourteenth day of the treatment, she was permitted to take a little food by the mouth, meat being interdicted for a fortnight, the enemata of the liquor carnis and milk to be used twice daily for five days longer.

Two days afterward she returned to her home in Wexford, seventy miles distant, and on the 28th of October I received a letter from her in which she said: "My stomach is quite well. I have not felt pain since I came home. . . . My appetite is increasing. I still continue to take the liquor carnis."

During the treatment she did not keep her bed, and, although rather weak, did not appear to suffer from the withdrawal from food by the mouth.

There was no hæmorrhage, and therefore some might be disposed to question whether this was a case of gastric ulcer at all: but I think, on reviewing the history—viz., the duration of the malady, the localized pain increased by pressure and by food, the failure of all medicines to remove the various symptoms—that few will disagree with my diagnosis of the case.

Dr. Donkin, physician to the Westminster Hospital, London, who has had great experience in cases of the kind, says that it is always wise to recognize in every protracted case of localized and unerrant pain after taking food, continuing for any length of time, and especially when followed and relieved by vomiting, a possible gastric ulcer. Vomiting of blood, although a very important sign, as a matter of safe practice must not be looked upon as necessary for the diagnosis of the disease.

In conclusion, I may add that my patient is now in excellent health, and her weight is nine stone six pounds, or an increase of ten pounds in about six months.

Microbial Arrow-poison.—"The natives of the New Hebrides smear the points of their arrows with a swamp earth, the poisonous agent in which, according to Dr. Ledantec, is the septic vibrio of the tetanus bacillus. This is gradually devitalized by keeping, and hence old arrows lose their virulence."—*Druggists' Circular and Chemical Gazette.*

THE
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NEW YORK, SATURDAY, JULY 4, 1891.

THE RADICAL CURE OF HERNIA IN CHILDREN.

The various operations for the radical cure of hernia in children are discussed by Dr. Henry O'Neill in the *British Medical Journal.* In his opinion, the most suitable cases for operation are the following: 1. Those of children of the poor, who either are unable to buy trusses or can not look properly after their daily application. Unless a truss is properly fitted and applied it is worse than useless. 2. Those of children in whom the hernia is so large that an ordinary truss is not sufficient to keep it reduced while the child is running about at play. 3. Most cases where a truss has been worn for at least twelve months without improvement, or where the hernia is increasing in size. 4. Those of children who are likely to become laborers in later life. 5. Every case after kelotomy has been performed for the relief of strangulated hernia.

In deciding upon the method to be employed, each case must be treated according to its own peculiarities, and exposure of the sac is usually necessary before these can be ascertained. In congenital hernia Macewen's method is best. If the sac has been torn and the wound is not easily closed, the sac may be ligated close to the neck and cut off half an inch below the ligature, and the upper end of the sac sutured to the abdominal muscles above the internal abdominal ring. This is known as Banks's method. Barker's method may also be selected, by which the sac is ligated in two places and divided between the ligatures, the upper part being sutured to the abdominal muscles and the lower part retained in the scrotum.

The following conditions must be observed to insure success: The patient is to be prepared for the operation by being given a warm bath each day for several days, having the bowels kept free, being given a milk diet and being kept in bed. The parts are to be prepared by thorough washing with soap, then with alcohol, and finally with a solution of carbolic acid or creolin. All hæmorrhage is to be arrested, and the wound drained with a bone drainage-tube, chromicized catgut being used for sutures and ligatures. The bandage and the dressings, which should be of absorbent wool, are to be firmly covered with an India-rubber web bandage. The wound should be dressed seldom, and only when the discharges stain the outer dressings, or when the temperature rises suddenly above 101° F. An opiate may be given for two or three nights. An anæsthetic should be used for the first two dressings, to prevent the child from crying and straining the abdominal wall.

Mr. R. W. Parker also contributes a paper on the same subject, and describes his method of operating. An incision two inches long is made to expose the sac, which is then cleared of the looser and more external layers. All the adventitious structures are not cleared away, for the sac proper in children is very thin and liable to tear. The spermatic cord being put well out of the way, the sac is drawn down as far as possible and three or four stitches are put in, drawing the neck of the sac firmly together. The object is to retain the silk ligatures permanently *in situ,* or as long as possible. If drawn too tight they are apt to cut their way out and so lead to failure. The neck of the sac is now allowed to retract well back within the external abdominal ring, after which the pillars are drawn together and the wound is closed.

FATTY DEGENERATION OF THE HEART IN DIPHTHERIA.

During a recent epidemic of diphtheria in Göttingen many persons died, and Schlem gives, in the *Archiv für pathologische Anatomie und Physiologie und für klinische Medicin,* an account of his examination of the muscular tissue of the heart in the fatal cases. His observations were not confined to those cases that were accompanied with cardiac symptoms, but embraced all the fatal cases that occurred during the time that his research was in progress; thirteen cases in all were the basis of this study. This systematic method of inquiry afforded the writer of the paper an unusual opportunity of estimating the frequency with which the heart is attacked in diphtheria, as well as the nature and extent of the attack. The pathological changes noted were the following: fatty and granular degeneration of the muscular fibers, slight hyaline degeneration and atrophy, and, in a few cases, extravasations of blood in the form of dots. The connective tissue frequently appeared somewhat rich in cells. Fatty degeneration and granular degeneration were found in every case, although they were very slight in some of them, especially when the false membrane had been the cause of death; in others the degeneration was extreme, so that some fibers seemed to be entirely replaced by fat cells, affording an explanation of the cardiac enfeeblement noted in those cases, or most of them, during life. Age appeared to have no special relation to this cardiac degeneration, but the duration of the attack seemed to have exerted a marked influence. In cases that exhibited the most extreme morbid changes the disease had lasted from ten to eighteen days; in other instances, where the fatal event had come earlier, the changes were less extensive, while in cases where the larynx was involved and the patient had succumbed in the early stage of the disease the least amount of morbid alteration was discovered. The changes in the muscular tissue of the heart seemed to have no influence over pulmonary complications. In several cases in which broncho-pneumonia was present there was little disease of the heart, while in others there was no pneumonia, but extensive cardiac degeneration. In one case proliferation of nuclei was observed in the intermuscular connective tissue, and this lay in close proximity to the pericardium at a point where that structure was undergoing a like change. In several instances the writer found the intermuscular and circumvascular connective tissue infiltrated with nuclei to some extent, but he was not able to determine whether or not this was a normal phenomenon in children. As to the causative influence of fever over fatty substitution, he expresses the conviction that it is not the cause, since in many cases the bodily heat had been moderate or not above the normal point. The pathology of the changes in the heart during diphtheria is analogous to the condition described by Orth as parenchymatous or degenerative myocarditis, which is a frequent result in other severe diseases of an infectious nature.

MINOR PARAGRAPHS.

THE SURGERY OF THE CAUDA EQUINA.

Dr. Leopold Laquer, in the *Neurologisches Centralblatt*, describes a case of compression of the cauda equina that came under his notice in September, 1888. The patient at that time complained much of a pain in the sacrum, and was unable either to sit or to lie with any comfort. In December, 1889, there was an exaggeration of the previous symptoms, with marked alteration in motion and sensation, as well as some atrophy of the lower extremities. The electrical reactions of both muscles and nerves were normal, and the reflexes were normal. Despite all treatment, the symptoms of pain and stiffness of the lower part of the back continued to increase in severity until September, 1890, when the patient was able to move only in the most careful way, and was obliged to hold his back in an attitude of extreme kyphosis. On the right side the patellar reflex was abolished, and on the left side it was very weak. Sensation was absent in the scrotum and perinæum, and also in the lower extremities. The sexual power was weak. There was some atrophy of the quadriceps of each side, but there were no trophic changes, and there was no ataxia. The patient's condition was one that obviously called for interference of some sort, as death from exhaustion was imminent. The symptoms, taken collectively, led the author to the diagnosis of compression of the cauda equina, from some unknown cause, followed by degenerative neuritis. Dr. Louis Rehen cut down upon the sacrum, and, laying open the entire canal, disclosed a small extradural tumor in the middle of its lumen. After its removal, further examination of the growth showed it to be a lymphangeioma cavernosum. Recovery was prompt. By the end of the second week after the operation the patient was free from pain, and sleep was natural. Four months later there was only a small opening left in the sacrum, the patient was able to go about holding the body in a normal attitude, the functions were nearly restored to the normal state, and the reflexes, though still diminished, were equal on both sides.

INEBRIETY AND CRIME.

The *Lancet* for April 25th refers to an action taken by the Society for the Study of Inebriety at its last meeting. The resolutions adopted were: 1. In all criminal trials in which the alleged criminal act has been committed by the accused when under the influence of liquor or has been committed by an inebriate, there should be an investigation into the previous medical history of the prisoner. There should also be an inquiry into the family history, so as to elucidate the heredity with special reference to inebriety, insanity, and other neurotic affections, syphilis, and gout. This twofold inquiry should be intrusted either to a medical expert or to a mixed committee, composed of a medical and a legal expert acting conjointly. The object of this investigation is to ascertain how far the accused has been cognizant of his alleged criminal offense, and as to whether, if so cognizant and so competent, he was able to resist the criminal impulse. Such an expert inquiry should be provided for the accused, whatever the circumstances, as a judicial provision to insure a fair and just trial. 2. The appointment of a mixed commission of judges, counsel, solicitors, and medical experts for the consideration of the question of dealing with inebriates who have been convicted of a criminal offense. This inquiry should have special reference to the best procedure to be pursued, whether (*a*), if penal, by cumulative punishment or otherwise; or (*b*), if curable, by medical treatment for a diseased condition, with due provision for classification, occupation, hygienic measures, and elevating influence. By some research of this kind such light might be thrown upon the genesis of crime, complicated with drinking, and the morbid conditions which precipitate not a few individuals into inebriate criminality, as might aid in the prevention of crime, as well as improve the criminals' chances of reformation, and increase the influence and dignity of the law by avoiding even the semblance of injustice.

BACILLI IN SYPHILIS.

Dr. von Marschalko has devised a method of staining by which, it is said, bacilli may be found in syphilitic growths of various kinds, such as papules on the skin, the indurated base of a chancre, and condylomata, as well as in the secretions of primary sores. The method employed is by double staining, as follows: The object, after having been hardened in alcohol, is immersed for thirty-six hours in an alkaline solution of methyl blue; it is then rinsed well with water and restained with a concentrated solution of vesuvin in water. By this process the bacilli are stained blue and can easily be distinguished from the tissues, which are brown. The *Lancet* for April 25th contains a more extended notice of this author's study of the bacteriology of syphilis.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending June 30, 1891:

DISEASES.	Week ending June 23.		Week ending June 30.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus..................	0	0	1	0
Typhoid fever..............	12	5	9	5
Scarlet fever...............	147	26	119	21
Cerebro-spinal meningitis.....	1	1	0	0
Measles..................	250	12	232	21
Diphtheria.................	75	26	51	18
Small-pox.................	0	0	0	0
Varicella..................	6	0	5	0
Whooping-cough...........	0	8	0	5
Erysipelas................	3	0	0	0
Mumps...................	0	0	0	0

Yale University.—The Medical School held its commencement exercises on Tuesday, the 23d inst. Dr. John S. Billings, of the army, gave an address on Ideals of Medical Education. A reception in Dr. Billings's honor was held at Professor Lindsley's house.

Changes of Address.—Dr. Sebastian J. Wimmer, to No. 236 West Forty-second Street (retaining his office at No. 201 East Twenty-first Street); Dr. Van Valzah, Dr. Kinney, and Dr. Nisbet, to No. 10 East Forty-third Street.

The House Staff of the German Hospital.—We have received the following communication, dated June 29, 1891: After a careful investigation into the difficulties between the superintendent of the German Hospital and the gentlemen composing the house staff, which difficulties resulted in the discharge of the superintendent and the resignation of the entire house staff, the Medical Board of the German Hospital does hereby declare that

1. Such sudden resignation of the entire staff was justified by the extreme and continued provocation on the part of the superintendent.

2. That the members of the house staff, at the request of the medical board, willingly continued to discharge their duties until relieved by the appointment of their successors.

3. The members of the house staff—viz., Dr. Fred. E. Sondern, Dr. Alfons Müller, Dr. Henry A. Kurth, Dr. William Ch. Gueth, Dr. Edw. Stachlin, and Dr. Ernest C. Schultze—have at all times during their term of service attended to their professional duties to the entire satisfaction of the visiting physicians and of the medical board.

[Signed.] Hermann G. Klotz, M. D.,
Ernst Schottky, M. D.,
Augustus Caillé, M. D., } *Medical Board.*

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending June 27, 1891:*

Hall, J. H., Surgeon. Detached from Naval Station, New London, and ordered to Naval Hospital, Chelsea, Massachusetts.

Atlee, L. W., Passed Assistant Surgeon. Detached from Nautical School-ship Saratoga, and to wait orders.

Steele, J. M., Passed Assistant Surgeon. Ordered to Nautical School-ship Saratoga.

Lung, G. A., Assistant Surgeon. Ordered to Naval Station, New London, Conn.

Page, J. E., Assistant Surgeon. Detached from Naval Hospital, Mare Island, and ordered to the Independence.

Pigott, M. R., Assistant Surgeon. Detached from U. S. Receiving-ship Independence, and ordered to Naval Hospital, Mare Island, Cal.

Field, J. G., Assistant Surgeon. Detached from U. S. Steamer Omaha, and granted three months' leave of absence.

Brathwaite, Frederick Gratton, of Stamford, Conn., commissioned an Assistant Surgeon in the Navy, June 22, 1891.

Letters to the Editor.

THE CASE OF TRANSFER OF A PATIENT FROM THE GERMAN HOSPITAL TO BELLEVUE HOSPITAL.

New York, *June 30, 1891.*

To the Editor of the New York Medical Journal:

Sir: The following facts will undoubtedly appear of sufficient interest to the medical profession at large to invoke their careful consideration.

Some weeks ago a young woman living in this city gave birth to a child, assisted by a midwife. Puerperal fever and mania developed a few days after. A physician, called in, prescribed for the patient, but did not examine her genitals. At last he advised sending the woman to the German Hospital. Here her uterus was cleaned by *curettement* of decomposing remnants of placenta, but later in the day the patient became so noisy and violent that she was removed to Bellevue Hospital. She was received at the German Hospital about noon, curetted at 2, and taken to Bellevue at 10 p. m. of the same day. Her temperature ranged between 102·5° and 104° F., her pulse between 110 and 120. There was no tympanites, no sign of peritonitis. At Bellevue the house physician found the temperature above 104° F., pulse fairly good, the uterus tamponed with iodoform gauze, the cavity clean and "sweet." No sign of peritonitis. The patient died after developing a temperature of 107° F. and above, about six hours after her transfer to Bellevue. In both institutions the case was diagnosticated as one of puerperal mania, caused by absorption of septic material from the uterus. The post-mortem made by the coroner confirmed this diagnosis, nothing being found of peritonitis or any other inflammation.

These facts were yesterday elicited at an inquest held by Coroner Schultze regarding the death of Mrs. Freeman, before a so-called "medical" jury, consisting in part of medical gentlemen. A portion of the verdict of this jury reads as follows:

"We are, however, unanimous in the opinion that the practice of transferring patients suffering with acute inflammatory diseases from one hospital to another can not but be injurious to the patient, and in this instance the transfer contributed to the death of the patient under consideration."

The points I wish to raise are:

1. Did this patient suffer from an acute *inflammatory* disease? There is not a word in the great bulk of testimony taken, or in the report of the symptoms and of the autopsy, corroborating this assumption. This supposed acute inflammation, playing such a conspicuous part in the minds of this "mixed" jury, could only have been an acute septic peritonitis. If this assumed peritonitis had prevailed, what would have been the patient's symptoms after transferring her from her home to the German, and later on from there to Bellevue Hospital? Most certainly *lowered* temperature, quick, thread-like pulse, and cool extremities—in other words, *collapse*. But nothing of this kind was noticed at either institution.

2. Did transportation accelerate the death of this patient? The woman showed all symptoms of septic puerperal mania when admitted at Bellevue—temperature 104° F. and pulse corresponding, fairly good, no sign of collapse, no sign of acute inflammation in the abdominal cavity. The temperature, now gradually rising higher, at last reached 107° F., a degree often seen then in acute infectious fevers when the heat centers of the brain and medulla are becoming paralyzed. Did transportation cause this high fever, or did it accelerate or intensify the action of the puerperal poison circulating in the blood of this woman? Did not the testimony of the Bellevue house physician prove that the uterus had been thoroughly emptied and cleansed at the sister institution, thereby removing even this possibility of contributing to the death of the patient?

Truly, if ever a verdict was given by a coroner's jury entirely inconsistent with the facts in the case, and particularly inconsistent with our present knowledge of puerperal infection and its consequent pathology and symptomatology, this one will certainly rank high in the history of verdicts given by mixed medical juries.

My sense of fairness has prompted me to report this notable coroner's inquest to the medical profession, and I wish to say here that I was present during the proceedings as a chance spectator and listener, and that I am neither on the staff of the German nor the Bellevue, but

A Visiting Physician to Another Hospital.

Proceedings of Societies.

NEW YORK SURGICAL SOCIETY.

Meeting of April 15, 1891.

The President, Dr. Charles K. Briddon, in the Chair.

Retropharyngeal Sarcoma.—Dr. F. Lange presented a female patient, between thirty-five and forty years of age, in order, he said, to explain the technique that he had followed in the extirpation of a retropharyngeal sarcoma. It had been observed for about four years, and had gradually increased in size.

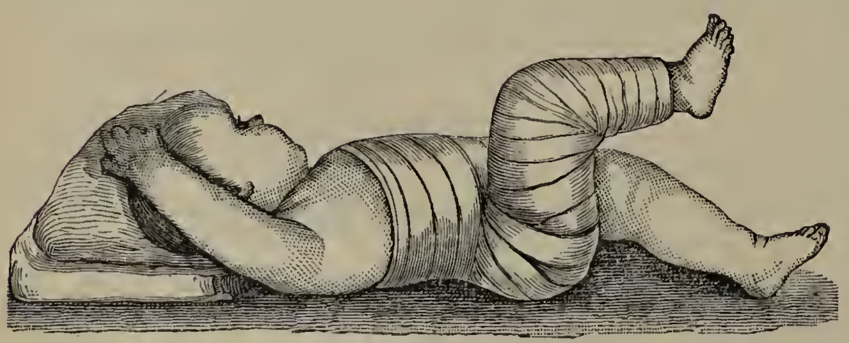
Within the last few months it had grown more rapidly. He reminded his hearers that he had, on a previous occasion, shown another case of a similar character, a cancer of the soft palate and of the pharynx, in which he had made Langenbeck's incision. In the present case he had adopted another method of external incision—that used by Kocher for operation on the tongue. It consisted of a semilunar incision in the submaxillary region and, from the middle of this first incision, another one passing vertically downward. A flap was then reflected upward and the soft parts were severed from the outer surface of the lower jaw. He then extracted a couple of teeth and sawed the jaw through. The field of operation was by this means made quite accessible. He also removed the submaxillary gland, which was somewhat enlarged and interfered with the approach to the entire tumor, but it could then be shelled out, mostly by manipulation. Union of the soft parts and of the severed bone had been prompt and complete, and it would be seen that the cosmetic results were quite good. The operation had been imperatively indicated, as the tumor was bulging toward the middle line and was interfering with breathing and swallowing, and the patient was having alarming attacks of suffocation. After the removal of the tumor the styloid process and the base of the skull could be touched with the finger.

Congenital Tumors of the Neck.—This was the title of a paper by Dr. Frank Hartley. (See page 1.)

Meeting of April 29, 1891.

Fracture of the Femur at the Trochanter at Birth.—Dr. J. A. Wyeth presented a little girl, four years of age, and narrated the following history: At the birth, which was by breech presentation, in order to hasten delivery and prevent fatal asphyxia by prolonged compression of the cord, the accoucheur introduced the index and middle fingers of each hand into the flexures of the thighs in order to make traction. In the act of drawing down upon this point a distinct snap was heard, and it was at once realized that the thigh was broken. A single finger would probably not have produced fracture on account of the lesser leverage it would have enjoyed. The speaker saw the infant immediately, and at once took measures to secure proper union.

He noticed that, when the leg was straightened out by traction on the part, the upper fragment projected sharply forward and bulged the skin out before it. When the thigh was flexed upon the abdomen, extension being kept up, the deformity entirely disappeared. He then determined to place the extremity with the thigh on the abdomen, the leg at right angles to the thigh, and fix the child in plaster of Paris. This was done, the plaster extending from just above the ankle of the affected (left) side along the thigh and over the abdomen and chest. The right lower extremity was uncovered, and the plaster was so arranged that the natural wants of the infant could be properly looked after.



At the end of three weeks union was complete; there was now no shortening or limp, and the cure was perfect.

The President was surprised to hear Dr. Wyeth's opinion that such an accident was rare, and thought that it was one likely to occur frequently in a large obstetrical practice, though it was also probable that every effort would be made to cover up the fact. Enormous traction was often made over the groin with the finger or a hook, and the fracture was only too likely to result.

Exsection of the Wrist Joint.—Dr. F. W. Murray presented a boy, five years old, who had fallen about a year before, striking on the back of the left hand. Tenderness and swelling of the dorsum of the hand followed and did not respond to local treatment. The boy was admitted into St. Luke's Hospital in February, with typical signs of tubercular inflammation of the wrist joint. In the latter part of the month the diseased tissues were removed through a median incision on the dorsum of the hand. The carpal bones were entirely disorganized, and the sheaths of the extensor tendons on the back of the hand, also the flexor tendons of the forearm, were infiltrated with tubercular material. The sheaths of the tendons were dissected out and the wounds were closed with catgut sutures. Iodoform gauze was packed into the cavity left after the removal of the carpus, a corrosive-sublimate dressing was applied, with an anterior splint extending to the middle of the fingers. Flexion and extension of the fingers were made after ten days, and passive motion of the joint was practiced after four weeks. The result had been excellent; the boy was able to use the hand almost as well as before the accident.

Malignant Degeneration of a Benign Tumor.—Dr. Lewis S. Pilcher presented a man, fifty-three years of age, who had, some sixteen years ago, noticed a small tumor growing beneath the left jaw. It was at that time considered to be an enlarged lymphatic gland. It increased slowly until about three years ago, when its growth became rapid, and it had developed to the size of the man's head. Last August there were signs of the tumor breaking down, and the speaker operated and found no difficulty in shelling it out. He supposed that he was dealing with a benign fibrocystic growth. The wounds healed kindly. A few weeks after, however, the patient was brought to the speaker with a recurrence at the site of the wound which gave evidence of being malignant in character. The patient was then subjected to another operation, and the affected parts, together with an enlarged gland from beneath the sterno-cleido-mastoid muscle, were removed. Skin transplantation after the method of Thiersch was done. Shortly after this a second recurrence was noticed. The growth was treated with chloride-of-zinc paste, and the usual methods for bringing about cicatrization were kept up until the whole had healed. The pathologist had, after examination of the second growth, reported that it was a typicul epithelioma. The patient's recovery had been retarded by a very severe attack of erysipelas.

Dr. Lange took exception to the assumption that the malignant condition found was a secondary development at the site of the benign growth. The original tumor might have been sarcomatous.

Dr. Pilcher conceded that the gross appearance of the primary tumor was suggestive of sarcoma, but he had the report of a reliable pathological expert to the effect that the recurrent growth was typical in character as an epithelioma.

Penetrating Stab-wound of the Abdomen.—Dr. F. H. Markoe presented a patient who had made a satisfactory recovery after a stab-wound of the abdomen with protrusion of the intestines. The man was shown in connection with the history of his case, detailed in Dr. Markoe's paper on this subject.

Dr. Wyeth advised in such injuries a preliminary exploration down to the peritoneal wound, and then, if penetration had taken place, it was, in his opinion, imperative to enlarge the wound and ascertain if there existed any wounds of the viscera.

Dr. L. A. Stimson was by no means sure that an exploratory incision was necessary after having determined that penetration had taken place. This had been at one time his custom, but he did not now deem it essential. It was often possible to discriminate, from the weapon which was used to inflict the injury, about what the extent and nature of the lesion would be. Stab-wounds inflicted with ordinary knives, even if entering the cavity, did not call for extensive exploration to determine the condition of the viscera. When, however, the wounds were made with long stilettoes, and these in the hands of Italians, the case was different. Then, again, he was not in favor of irrigating the abdominal cavity unless there was some very good indication for doing so.

Dr. Markoe thought that, as a rule, the surgeon had no idea what kind of weapon had been used or what had been the force with which the injury was inflicted. He considered that irrigation served two very necessary purposes: It removed foreign material and prevented the stagnation of serum and blood-clots, which otherwise became the nidus of septic invasion.

Appendicitis.—Dr. Murray showed an appendix vermiformis which he had that day removed from a boy of eleven years of age. The case had presented the usual typical symptoms, though not of a severe type. Still the case was considered one in which it would be more prudent to operate, and accordingly, some forty hours after the initial symptoms, the speaker had operated. It would be seen that the condition of things warranted the procedure, for the appendix was in a marked gangrenous condition. The appendix lay downward and inward, hanging in the true pelvis, and was immensely distended. There were no adhesions, excepting a few on the inner half of its base, where the omentum was slightly adherent. The entire base was gangrenous, and part of the adjacent mesentery, and near the tip of the appendix there was a fæcal concretion. On section after removal, the entire lining of the appendix was found gangrenous, and near the tip of the process, over a small area, all the coats, excepting the serous, had sloughed away. The appendix contained an ounce of stinking, dark-colored fluid, and it was only a question of a few hours before there would have been perforation and emptying of its contents into the peritoneal cavity. The absence of adhesions and the position of the appendix confirmed such an opinion.

Dr. Lange made a warm protest against the practice of indiscriminate laparotomy for appendicitis. This way of proceeding included four fifths of the superfluous laparotomies, since it was a fact that in a very large majority the patients would recover after simple incision at a somewat later stage. It was only a small minority of cases which required early laparotomy, and to distinguish those was the task now before the profession.

Dr. Stimson said that none of those who were in favor of the early operation advised that it should be resorted to in every case. They were not, however, in favor of waiting for the formation of an abscess, for peritonitis, or for sepsis. Fitz's statistics showed a mortality of 25 per cent. under the expectant treatment; that of the early operation was perhaps not yet established, but Dr. McBurney had reported twenty-four cases with only one death, a saving, according to the statistics, of five lives.

Dr. Lange did not wish to be understood as advocating that an operation should be delayed when the indications for it were clear, and he was as willing as any one to interfere by laparotomy if in no other way the patient could be saved, but thought that many of the patients who had been subjected to the great risk of abdominal section and its possible sequelæ might have been spared this by more temporizing measures. He was looking anxiously for the day when the clinical indications would be sufficiently understood in this disease to warrant definite scientific deductions as to the proper course of treatment.

Osteomyelitis.—Dr. Lange showed a specimen of osteomyelitis of the neck of the femur that had been removed at an operation for excision of the joint. The patient was a boy, fourteen years of age, and the condition of the joint had been induced by traumatism, the boy having hurt himself while riding a bicycle. A very extensive abscess had developed, involving the entire iliac fascia and the upper third of the thigh on the injured side. The operation of excision of the joint, which had been performed only two days ago, had demonstrated that an osteomyelitic focus existed in the epiphyseal line with two small sequestra. From this, perforation into the joint had taken place. The case was a very severe one, as also the other hip joint and one ankle joint were involved.

Dermoid Cyst.—Dr. Lange also exhibited a specimen taken from a woman who, six days after the onset of her illness, had been operated upon for septic peritonitis. The symptoms had been in the beginning comparatively mild; there had set in on the fifth day high temperature, vomiting, and weak pulse. Her physician had diagnosticated the case as one of ileus, dependent upon some inflammatory process. The speaker was unable to make an exact diagnosis; he could, however, feel a certain resistance on the right side over Poupart's ligament, reaching as far as the middle, and he had thought that perhaps he had to deal with a case of perforating appendicitis. He had intended, as long as possible, to avoid opening into the peritoneal cavity, and had proceeded by a large Bardenheuer's incision from the right side; but, on cutting down, had come upon the peritonæum distended by a dark-colored fluid beneath. On opening into the cavity, a bloody, serous fluid escaped, followed by clotted blood. He could put his finger upon a rather extensive tumor. This had proved to be a large dermoid eyst that had been twisted round its pedicle. Its walls were enormously engorged. Rupture of a vessel had occurred and extensive hæmorrhage had taken place into Douglas's *cul-de-sac*. The patient died thirty-six hours after the operation from progressive septic peritonitis. The septic condition of the patient showed itself before the operation principally by the condition of the pulse and the somewhat hurried respiration, while she was quite conscious and complained of hardly any pain. On incising, but little bleeding occurred. The parts were almost dry. The speaker had repeatedly called attention to this ominous fact. These patients were subject to the influence probably of a toxic agent, against which a chemical antidote ought to be found besides our surgical help, which would mostly be insufficient and decidedly increase shock.

Book Notices.

A Compend of Gynæcology. By Henry Morris, M. D., late Demonstrator of Obstetrics and Diseases of Women and Children in the Jefferson Medical College, Philadelphia, etc. With Forty-five Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1891. Pp. 175.

The usefulness of compends is decidedly disputable, for they are in their nature assuredly like mile-stones—excellent as indicative of the road passed over, but not apt at furthering the journey. The author states that his work is intended to aid the student to choose the best method of procedure in gynæcological examination and to solve the various perplexing problems submitted to him. The book is an epitome, necessarily scanty in detail, and, although all the statements are clearly made, they are misleading by reason of their dogmatic form and absence of suggestiveness.

BOOKS, ETC., RECEIVED.

The Nervous System in the Treatment of Consumption. By Thomas J. Mays, M. D. [Reprinted from the *Transactions of the Philadelphia County Medical Society.*]

The Genuine Works of Hippocrates. Translated from the Greek, with a Preliminary Discourse and Annotations, by Francis Adams LL. D., Surgeon. Two Volumes in One. New York: William Wood & Co. Pp. 390–366. [Price, $5.]

Insomnia and its Therapeutics. By A. W. Macfarlane, M. D., F. R. C. P. E., etc. Reprinted from *Wood's Medical and Surgical Monographs.* New York: William Wood & Co., 1891. Pp. v–298. [Price, $1.75.]

Transactions of the Southern Surgical and Gynæcological Association. Volume III, Third Session, held at Atlanta, Georgia, November 11, 12, and 13, 1890. Published by the Association, 1891. Pp. xli–444.

Professional Atmosphere and Morals; or, Patents and Secrets *vs.* Liberal Profession. Address delivered before the New York Odontoogical Society, March 19, 1889, at the New York Academy of Medicine. By Horatio C. Meriam, D. M. D., Harvard University Dental School. [Reprinted from the *Dental Cosmos.*]

Bacteria and their Products. By German Sims Woodhead, M. D. (Edin.), Director of the Laboratories of the Conjoint Board of the Royal Colleges of Physicians (Lond.) and Surgeons (Eng.). With 20 Photomicrographs, and an Appendix giving a Short Account of Bacteriological Methods and a Diagnostic Description of the Commoner Bacteria. New York: Scribner & Welford, 1891. Pp. xiii–459. [Price, $1.25.] [The Contemporary Science Series.]

Les fonctions du cerveau. Doctrines de l'École de Strasbourg, doctrines de l'École italienne. Par Jules Soury, de la Bibliothique nationale, maître de conferences à l'École pratique des Hautes-Études. Paris: Lecrosnier et Babé, 1891. Pp. xvi–464. [Prix, 8*fr.*] [Publications du *Progrès médical.*]

Pathogénie du choléra morbus. Par le Dr. Ladislas Druzylowski, médecin en chef de l'hôpital de la Sainte-Trinité. Paris: G. Steinheil, 1891. Pp. 4 to 55.

Experimental Investigations by the State Board of Health of Massachusetts upon the Purification of Sewage by Filtration and by Chemical Precipitation, and upon the Intermittent Filtration of Water. Made at Lawrence, Mass., 1888–1890. Part II of Report on Water-supply and Sewerage.

The Therapeutic Effect of Prisms in Ophthalmic Practice; a Study of One Hundred Cases in which they were prescribed. By Henry D. Noyes, M. D., New York. [Reprinted from the *Proceedings of the American Ophthalmological Society*, 1890.]

Hemianopsia. By Henry D. Noyes, M. D., New York. [Reprinted from the *Medical Record.*]

Consideration of the Legal Status of Midwifery in the State of New York. By F. Park Lewis, M. D., Buffalo. [Reprinted from the *North American Journal of Homœopathy.*]

The Treatment of Fibroid Tumors of the Uterus after the Method of Dr. Apostoli. By John Homans, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal.*]

The Effect of Arterio-sclerosis upon the Central Nervous System. By George J. Preston, M. D., Baltimore. [Read before the Clinical Society of Maryland, January 16, 1891.] Report on the Ophthalmoscopic Examination of Dr. Preston's Cases. By Harry Friedenwald, M. D., Baltimore. [Reprinted from the *Journal of the American Medical Association.*]

Away with Koch's Lymph! By Nicholas Senn, M. D., Ph. D. Being a paper read by special request before the Chicago Medical Society, May 18, 1891. [Reprinted from the *Chicago Medical Recorder.*]

Address to the Graduates of the Training School for Nurses at the Long Island College Hospital, on Thursday evening, June 4, 1891. By Professor J. S. Wight, M. D.

Phthisis Pulmonalis. By W. McCollom, M. D., of Brooklyn, N. Y. (An Address delivered before the Kings County Medical Association.) [Reprinted from the *Journal of the American Medical Association.*]

Resection of the Optic Nerve. By L. Webster Fox, M. D. [Reprinted from the *Medical and Surgical Reporter.*]

Myoma of the Uterus becoming Sarcomatous. By Alban Doran. [Reprinted from the *Transactions of the Pathological Society of London.*]

How should Girls be educated? A Public-health Problem for Mothers, Educators, and Physicians. By William Warren Potter, M. D., of Buffalo. The Anniversary Address of the President, delivered at the Eighty-fifth Annual Meeting of the Medical Society of the State of New York. [Reprinted from the *Transactions.*]

Sixth Annual Report of the Board of Health of the City of Newport, R. I. For the Year 1890.

Medical and Surgical Reports of the Cook County Hospital, Chicago, Ill., for the Six Months ending January 1, 1891. Edited by Louis J. Mitchell, M. D., Registrar.

Reports on the Progress of Medicine.

PÆDIATRICS.

By FLOYD M. CRANDALL, M. D.

The Causes and Prevention of Broncho-pneumonia.—Mosny (*Rev. mens. des mal. de l'enfance*, Feb., March, 1891) contributes a long paper on this subject. He classifies broncho-pneumonia under two types: *a*, lobular pneumonia, which is always a secondary disease, the primary affection being a catarrhal bronchitis; and *b*, pseudo-lobar pneumonia, a form of acute lobar pneumonia peculiar to children. In the first form the bronchitis is marked by an extension of the inflammation to the connective tissue surrounding the arterioles and bronchioles, and fibroid degeneration is a frequent result. Abscesses are sometimes formed, but the usual termination is by resolution. In sixteen cases bacteriological examinations were made. Thirteen of these were secondary to measles, diphtheria, or scarlatina. From these investigations the author believes that the pneumonia is due to two special germs, and not to the germ of the disease in the course of which the pneumonia occurs. In most cases it appeared to be the *Streptococcus pyogenes*, but occasionally it was the pneumococcus of Fränkel. In the pseudo-lobar type the pneumococcus was invariably found. These germs are frequently found in the mouths of healthy persons. The lungs probably become weakened during the course of these various infectious diseases and more susceptible to the attack of the germs.

Intubation of the Larynx.—Rauke (*Ctrlbl. f. Chir.*, March 7, 1891) reports 364 cases of intubation in diphtheritic croup. Of these, 132, or 36 per cent., ended in recovery. Among 849 cases of tracheotomy, 39 per cent. ended in recovery. It is found that in very young subjects, in whom tracheotomy is very fatal, intubation is more successful. Pneumonia is less common after intubation than after tracheotomy.

Jacques (*Rev. mens. des mal. de l'enfance*, Jan , 1891) approves of intubation and quotes from Waxam and Northrup the following advantages: 1. It is as efficient as tracheotomy in relieving the dyspnœa. 2. There are no objections on the part of parents and friends, as in tracheotomy. 3. The operation is comparatively easy and simple and presents neither danger nor shock. 4. Anæsthetics are not necessary, neither are skilled assistants. 5. No wound is added to the patient's suffering, to become a source of new infection. 6. Less irritation results from the tube than from the cannula, because the tube is smaller than the trachea and is so shaped that it presses only upon the glottis. 7. Expectoration is easier with the tube than with the cannula. 8. In the case of the tube the air reaches the lungs moist and warm, thus lessening the danger of pneumonia. 9. The operation is not bloody, a decided advantage in the case of a weakened child. 10. It is more rapid and presents fewer dangers than tracheotomy. 11. Convalescence is more rapid, for there is no wound to heal. 12. The patient does not require the assiduous and continuous care of the physician, as in tracheotomy. 13. It does not prevent tracheotomy, and, if that operation is required, the tube will furnish a useful guide. 14. Intubation leaves no scar. 15. In mild cases, in which treatment is required for but a short time, it is of special value.

The author believes that all these statements are true, but it must be borne in mind that for the beginner the operation is not always simple and easy. In little girls the pharynx is sometimes small and deep and the operation becomes one of considerable difficulty. While the operation is not yet so fully perfected as it may be, the author believes it to be deserving of great consideration.

Pauli (*Therap. Monatsch.*, Jan., 1891) is one of the few who prefer tracheotomy to intubation. He acknowledges the advantages of intubation, but thinks the after-treatment presents difficulties that more than counterbalance them. In his experience the tube has sometimes been blocked up, and has even slipped into the trachea and has frequently been coughed out. Ulcerations have formed about the tube also, and feeding has been a matter of much difficulty. Pneumonia has occurred more frequently than after tracheotomy. He performs intubation only when tracheotomy is refused by the parents. [The author's experience leads to the suspicion that he has employed improperly constructed tubes. His proposition to remove the tube during feeding certainly indicates that something in his methods or instruments has been radically wrong.]

The Natural History and Prevention of Diphtheria.—The Milroy Lectures of the present year were upon this subject and were delivered by Dr. Thorne and reported in the *British Medical Journal* for February and March. The author believes that the influence of soil and geological formation, though slight, is of more importance than is usually supposed. Diphtheria is especially common in damp valleys. In England it is most prevalent during the last three months of the year. As to sex, the author, unlike most observers, believes that females have a greater power of resistance to exposure than males. In considering age as a factor, it appears that the greater number of cases occur in subjects between two and twelve years of age, and a further excess can be shown in those between two and five years old. Several epidemics were referred to in which the prevalence of so-called simple croup was soon followed by cases of true diphtheria. Many epidemics of diphtheria are accompanied by attacks of illness to which are applied such names as sore throat or tonsillitis. The infectious character of many of these apparently simple sore throats is proved in too many instances. If there is any relation between scarlatina and diphtheria it probably lies in the fact that the condition of the throat in scarlatina affords a soil for the reception of the diphtheritic poison. Were it otherwise, the absence of diphtheria as a complication of scarlatina among several thousand patients treated in the London Fever Hospital would be inexplicable. Diphtheria, when it does occur, is, almost without exception, a sequel to scarlatina. The action of bad hygienic surroundings and imperfect sewers in causing diphtheria the author believes to be indirect. Such conditions frequently produce sore throat of a benign character, and these abraded surfaces furnish an excellent soil for an invasion by the diphtheritic organisms. The third lecture was devoted to the consideration of the influence of schools in disseminating contagious diseases. The fourth lecture dealt with other means of dissemination, especially by milk.

Foreign Bodies in the Œsophagus of Children.—Polikier (*Rev. mens. des mal. de l'enfance*, Jan., 1891) reports two cases of the successful removal of a coin from the œsophagus by simple measures. The coins had become impacted, with the effect of causing considerable dyspnœa. The body could be felt with the fingers, and by rubbing upward and backward the child was led to vomit, and the coin in each case was at once expelled.

Foreign Bodies in the Larynx in Children.—Jules Simon (*ibid.*), in a lecture on this subject at the Hôpital des enfants malades, says that when suffocation is threatened tracheotomy should be performed. The same operation should be performed if the surgeon can not remain in constant attendance upon the patient. It is also indicated when the foreign body is irregular in shape, like a fish bone, or when it is apt to swell, like peas or beans. The incision should be made as low in the trachea as possible, and efforts should be made, by changing the child's posture, to dislodge the foreign body. If this is successfully removed it is best to insert a tube, which tends to arrest hæmorrhage and prevent the formation of emphysema. The symptom most to be relied upon in making a diagnosis of foreign body in the larynx or trachea is the sudden onset of dyspnœa without change in the voice and without the history of preceding throat disease.

A Rare Sequela of Scarlatina.—Davies (*Brit. Med. Jour.*, Feb. 28, 1891) reports a peculiar and very rare sequela of scarlatina. The patient was nine years of age and was in the third week of an attack of scarlatina. He awoke in the morning with no peculiar symptoms. At 9.30 he suddenly began to complain of violent pain in the legs, which were cold, puffy, and very tender to the touch. Dark spots soon began to appear on the shins, both calves, and the dorsum of the left foot. At 1.30 the following conditions were noted: He was anæmic and desquamating freely. The temperature was normal, as was also the urine. The lower extremities, from the knees downward, were slightly œdematous; the surface was warm; there were ecchymoses about both ankles. The calves were covered by bluish-black subcutaneous hæmorrhagic patches, surrounded by narrow zones of inflammation. They were very tender on touch. On the following morning the temperature was normal, the surface was moist, and the urine was scanty but normal. The ecchymoses had now merged into large black patches surrounded by inflammatory zones. Their symmetry was remarkable. The legs were very painful, so that the child shrieked if they were moved or touched. New centers of ecchymoses were appearing on the legs. At 1 P. M. the patches were stationary, except those on the right hip and the dorsum of the left foot. The mind was still clear. At 4.30 the patches were spreading rapidly, the pain was intense, and there was slight fever. At 7.30 the child was removed to the hospital, where he died on the following day at noon. At the autopsy the pleural cavities were found to contain some blood-stained fluid; the lungs were anæmic, but otherwise normal; the heart contained no clots, but the walls were thin and flabby; the liver and kidneys were anæmic; the spleen was not enlarged. There were no extravasations of blood in any internal organ, and there was no abnormity except anæmia.

Tetanus Neonatorum.—Baginsky (*Berlin. klin. Woch.*, Feb. 16, 1891) reports a case in which the symptoms developed on the eighth day. The child was placed under the charge of Dr. Kitasato for treatment by injections of blood serum obtained from an animal rendered proof against the disease. The treatment was thoroughly carried out, but the patient died six days after the onset of the first symptoms. No change was discovered at the umbilicus after death, neither was there any change in the peritonæum or the umbilical vessels. Cultures were made from the serum found in the umbilicus, which resulted in the growth of numerous bacteria, among which the bacillus of tetanus was discovered. Mice inoculated with the culture showed the symptoms of tetanus at the end of twenty-four hours, and died six hours later. Where the inoculation was made, suppuration followed, and the pus thus formed was found to contain the bacillus of tetanus.

The Treatment of Whooping-cough.—Séjournet (*Union méd. du Nord-est*, No. 12, 1890) treats whooping-cough by confining the patient to two rooms, one for the day and one for the night. Each room is thoroughly aired during the time it is not in use. Resorcin is used as an antiseptic, and ipecac and belladonna are employed for relief of the cough. The diet is carefully regulated.

Indican in the Urine of Children.—Hochsinger (*Dtsch. med. Woch.*, xii, 1891) has examined the urine of young infants and children with reference to the presence of indican. In healthy children or those suffering from simple dyspepsia it was very rarely found. In those having acute diarrhœa of a serious character it was almost invariably found, but when the diarrhœa was mild it appeared less often and in smaller quantities. In tuberculosis it is always present in large quantity. The author believes that the production of indican is due to the decomposition of milk albumin.

Typhoid Fever in an Infant.—England (*Montreal Med. Jour.*, Feb., 1891) reports a case of typhoid fever in a child eight months old. At the onset there was feverishness, with restlessness, some vomiting, and slight diarrhœa. On the third day the temperature was 102·5° F.; the heart and lungs were normal; the abdomen was tympanitic. At the end of a week the temperature still remained high, ranging from 102·5° in the morning to 104° in the evening. About this time the spleen was found to be enlarged, extending fully two inches below the ribs; and an eruption appeared on the abdomen, chest, and back. This consisted of numerous small, isolated, bright rose-spots, of about the size of a pin's head or a little larger. The appearance of these spots, the persistent high temperature, the tympanites, the gastro-intestinal derangement, with the decided enlargement of spleen and liver, sustained the diagnosis of typhoid fever, though it is of rare occurrence at this age. Slight bronchitis developed during the second week, there was evidently headache, and the eyes were sensitive to light. At the end of the third week the temperature had become intermittent and fell to normal about twenty days after the onset of the fever. The child was kept on a liquid diet throughout; the treatment was symptomatic. Twelve drops of brandy were given every two hours and a full dose of quinine if the temperature reached 103°.

Erythema Nodosum in Children.—Comby (*Rev. mens. des mal. de l'enfance*, Feb., 1891) reports sixteen cases of this disease. It is rare in infancy, and he does not believe there is any relation between it and rheumatism. It begins with pain, lassitude, constipation, and loss of appetite. There is usually some fever, which is frequently of an intermittent type, the exacerbation being in the evening. There is sometimes a peculiar paleness which precedes the eruption and continues after the latter has passed away. The eruption is usually confined to the lower extremities, but in two of the author's cases it appeared on the arms as well. Convalescence is slow, sometimes being longer than the illness itself, and the child remains pale and exhausted. Unless it is complicated it is not, as a rule, a very serious disease in children. Legroux, contrary to the author's belief, holds that there is a direct relationship between erythema nodosum and rheumatism. Uffelmann, Birch-Hirschfeld, and Oehme have seen the disease in children showing various tubercular lesions.

A Case of Spina Bifida, Talipes Calcaneus, and Hernia.—In the *Glasgow Medical Journal* for May, 1891, this remarkable combination of deformities is reported by Dr. Beaston. The child lived to be six months old. The spina bifida was of the size of a large orange and was located in the lumbar and sacral region. It was at first sessile, but gradually became pedunculated. A puncture was made and Morton's fluid injected. At first the child seemed to improve, but leakage occurred from the cyst wall, and ten days afterward the child died. Double inguinal hernia was present, also the very rare form of club-foot known as talipes calcaneus. In considering the question of the pathology of club-foot this would favor the muscular or musculo-cutaneous theory, which is preferable, the author believes, to the osseous theory. Recently, however, the mechanical pathology of club-foot as resulting from malposition *in utero* seems to be gaining ground. The child's head previous to the operation presented a very hydrocephalic condition, but, owing to the leakage, this disappeared, leaving the bones of the head quite collapsed.

Tuberculosis of the Submaxillary Bone, with Spontaneous Fracture.—Cnopf (*Münch. med. Woch.*, No. 46, 1890) reports this peculiar condition as occurring in a child of a year and ten months. The patient was in a debilitated condition and had a tubercular arthritis of the left elbow. The bones of the forearm and the metacarpal bones on the right side also showed evidence of disease. The general condition would not admit of operation. The child survived but a short time, and at the autopsy extensive tubercular disease of the lungs and abdominal organs was found. On examining the submaxillary bone, marked caries was found, with a fissure extending from a small cavity where a tooth was forming across the whole width of the bone. There were four incisors and two first molars. On the left side there were a number of cheesy masses containing bacilli in large numbers. It was evidently a tuberculous disease of the bone, the supernumerary teeth causing irritation and inflammation which under the circumstances took the tubercular form.

Congenital Occlusion of the Urethra.—Campbell (*Brit. Med. Jour.*, Feb. 28, 1891) reports a case. No urine having been passed at the end of twenty-four hours, an examination was made, when the meatus appeared to be covered by a thin layer of membrane. No canal, however, appeared beneath it. Assistance was called, and an attempt was made to force a passage. By the aid of a sharp and a blunt probe, a stilette, and a No. 1 silver catheter, a passage was made down to the subpubic arch. Great care was necessary to keep in the imaginary line of the urethra, the only guide being the finger. With the finger in the rectum, a plunge was made forward with the stilette. It entered some place where it met no resistance, but, on withdrawing it and passing a catheter, no urine was obtained. Twelve hours later urine was passed freely. At three years of age the child was apparently in a normal condition as regarded the urethra.

Intussusception in a Child; Operation.—Lockwood (*Brit. Med. Jour.*, Jan. 17, 1891) reports a case of intussusception in a girl of four years. The symptoms had continued five days, when an incision was made in the right linea semilunaris. Slight peritonitis was found, and the invaginated bowel, which was part of the ileum, was firmly adherent to its unsheathing intestine, which was also ileum. The peritonæum was split at every attempt at withdrawal. It was therefore decided to resect the affected portion of intestine. The peritonæum having been cleansed, the intestines above and below the diseased part were controlled with an elastic band. The affected part and a wedge of mesentery were removed, and, after the distended intestines had been emptied of gas and fæces, suturing was done by the Czerny-Lembert method. The abdomen was closed after irrigation with hot water, but this increased the shock instead of diminishing it. There was exhaustion before the operation, and there was considerable collapse after it was finished; from the latter the child never rallied, but died twenty hours after. Examination showed that the lumen of the bowel was pervious, and that the line of sutures was secure. The fatal result was probably due to the time occupied by the operation. The resection of a portion of the mesentery had much to do with this, as it caused troublesome bleeding. The literature of the subject seems to show that, out of fifteen cases of resection of intussuscepta, three have ended in recovery.

In the discussion, Mr. Cripps said that in dealing with a case of irreducible intussusception he believed resection gave the best chance of recovery. He spoke of a remarkable case in a young child in which a substance that looked like a leather strap protruded from the anus. About six inches of it was pulled down and cut off, and afterward other portions of the bowel. The child recovered, but died six months later from measles, when it was found that nearly the whole of the large intestine was gone. Dr. Whipham spoke of the necessity of care in the use of opium in such cases. It was proper in the earlier stages to relieve pain and spasm and restrain peristalsis; when constipation had been established and vomiting had occurred, it masked the symptoms and led to a deceptive calm that was often disastrous.

Miscellany.

The Question of the Liability of Hospital Officials for Injuries imputed to their Negligence.—We take the following decision, by Chief-Justice Daly, from the *New York Law Journal* for June 13th:

This is an action to recover damages for the death of Jennie Harris, the wife of Abraham Harris, the plaintiff, who, as her administrator, claims under the statute which gives a right of action for the wrongful act, negligence, or default causing the death of a person who would have had a cause of action for such wrongful act, neglect, or default, if death had not ensued (Code, section 1,902).

The deceased was received as a patient in the Woman's Hospital in the city of New York on January 9, 1889, for treatment for a lacerated cervix, and submitted to an operation performed by the late Dr. James B. Hunter, assisted by Dr. Clement Cleveland and Dr. Lemuel G. Baldwin, on January 14, 1889. The operation was apparently successful; but about four o'clock in the morning of January 19th, while laboring under a temporary fit of insanity, she arose, unobserved, from her bed in the ward where she lay, and, finding her way to the toilet room of that floor, leaped from the window, and was killed by her fall of four stories to the ground below.

In the ward in which Mrs. Harris lay, which was a section of the Baldwin pavilion of the hospital, and which was eighty-five feet long by twenty-five feet wide, there were beds for nineteen patients, and all were occupied; three nurses were on duty by day, but only one at night; a physician was in attendance all night, who had fifty to seventy-five patients under his care; he saw Mrs. Harris every day after the operation, and sometimes oftener; he saw nothing unusual in her condition after the operation; the night of the fatal accident her pulse was very nearly normal, with nothing to indicate fever or anything wrong; she read her prayers until the lights were put out, and was quiet until about one o'clock, A. M., when the attention of the nurse, Miss Carson, was called by Mrs. Curoe, the patient in the adjoining bed, to the fact that Mrs. Harris had called her up and was moving in her bed; the nurse went to her and found her trying to get out of bed, and told her "she would injure herself if she got out of her bed, that she must stay in bed and ask for anything she wanted, because she would spoil her operation if she tried to get out any more." Mrs. Harris lay on the bed and was quiet after that, and the nurse went down and told the doctor what Mrs. Harris had tried to do. He prescribed two drachms of bromide, a common sedative, usually prescribed for the purpose of quieting the general nervous system, and, by so doing, produce sleep. The nurse administered the remedy to Mrs. Harris, who, after that, was quiet and apparently asleep. About four o'clock the nurse passed her bed, and she was apparently asleep. The nurse went to a bed, four beds from her, to attend another patient, and while there heard the noise of a shutting door at the other end of the ward. Going to see what was the matter, she found that the wind had blown the door open and slammed it. The nurse from the floor below heard the noise and came up. Miss Carson thought of Mrs. Harris, went to the bed and found it empty, she having stolen so quietly from the room that she was not heard. The window of the little toilet room, located just off the ward, was found open, and a chair placed so that anybody could get up to the window and out of it. The body of Mrs. Harris was found in the yard, beneath this window.

It is claimed by the plaintiff that the negligence of the hospital authorities was the cause of the death, and that this negligence was in not providing more than one nurse at night to look after the patients in the particular ward, and a nurse more experienced than the nurse in charge; also, in not providing a physician to sit up at night and watch the patients and prescribe from his personal examination, and in not providing more than one physician to attend to those patients at night, and one more experienced than the surgeon in charge.

There can be no charge of negligence unless there is a breach of duty imposed by law, and to ascertain whether there was negligence on the part of the hospital authorities in this case, the duty which the law imposes upon them must be considered. Their duty is to exercise ordinary and reasonable care in furnishing medical attendance and nursing to the patients whom they receive. This care is not to be apportioned to the amount of money which the patient contracts to pay, and is wholly irrespective of any consideration growing out of the fact that the sum paid, or agreed to be paid, is less than the actual cost to the institution of maintaining, treating, and caring for such patient. The same care must be taken of a charity patient as of one who pays the highest price demanded for hospital accommodation. In this respect the same rule applies to hospital authorities as to individual physicians, and the rule as to the latter is well stated: "It may be considered as a received principle of law that a physician, having rendered his services gratuitously, as in hospitals, or among outdoor poor, is bound to exhibit the same degree of ordinary diligence and skill in the treatment of a patient as though he were acting under the incentive of a consideration or a prospective reward. If he undertakes to execute the trust reposed in him, he is bound to do it well, or else he may be compelled to respond in damages to the party injured by his misfeasance. He can not apportion medical skill or his diligence to meet the prospective emoluments flowing out of any given case" (Ordronaux, Jur. of Med., sec. 27).

"Whether the patient be a pauper or millionaire, whether he be treated gratuitously or for a reward, the physician owes him the same measure of duty and the same degree of skill and care. He may decline to respond to the call of a patient unable to compensate him, but if he undertake the treatment of such a patient, he can not defeat a suit for malpractice, nor mitigate a recovery against him upon the principle that the skill and care required of a physician are proportionate to his expectation of pecuniary recompense" (per Pryor, J., charge in Becker *vs.* Janinski, not reported; see 29 *Med. Rec.*, 461). "A doctor attending a poor person out of charity would be liable for mere ordinary negligence in the treatment of his patient, and constructively it would not be mere ordinary negligence, because his profession implies skill" (Shirley's Leading Cases, 43; Shields *vs.* Blackham, 1 H. Blackstone, 158).

The observation in Sherman & Redfield on Negligence, section 432, that a physician or surgeon attending gratuitously is liable for gross negligence only, is qualified and explained by the context enunciating the principle that, as the duties of a physician relate to the preservation of human life, it may be gross negligence to fail in giving such attention to his patient as would only be expected from a well-paid person in respect of matters of more pecuniary value.

The deceased, then, whatever her pecuniary arrangement with the hospital authorities, being entitled to the same degree of care as every other patient, the defendants were bound to exercise, as we have said, ordinary and reasonable care in furnishing medical attendance and nursing. They were bound to supply the services of a physician and surgeon possessed of the same degree of skill, learning, and experience to be expected of his profession generally; for such a qualification is all that a patient has the legal right to expect of any attending physician (Small *vs.* Hayward, 128 Mass., 131; Haffon *vs.* Richmond, 48 Vt., 261; see Rogers, Om., *The Law and Medical Man*, chap. 5, and cases quoted). "The diligence and skill required are reasonable, or ordinary diligence and skill, such as is manifested or possessed by the profession as a body, not the highest degree, nor that degree which is possessed only by the most eminent of the profession" (McClelland's Civil Malpractice, 521, and cases cited). It was proved without contradiction in this case that Dr. Hunter, the surgeon who operated upon Mrs. Harris, was one of the best-known surgeons in the country and was selected by her, and there is no question as to the proper performance of the operation. It was also proved that Dr. Baldwin, the house surgeon, who was on duty the night of her death, had had charge of her after the operation; that he was a graduate of the Long Island College Hospital in 1886, and secured his position in the Woman's Hospital in 1887 at the age of twenty-five years, after a competitive examination, and there was no attempt to show that he lacked the necessary skill, learning, or experience for his position. As to the nurse who was in attendance on the night in question, her capacity and competency for the place were conceded on the trial.

There being no dispute as to the learning, experience, and skill of the physician in charge, nor as to the capacity and competency of the nurse in attendance, the questions remaining to be considered are: 1. Whether there was actual negligence on the part of the physician and nurse in question? and, 2. Whether the hospital authorities were negligent in not providing a physician to sit up at night to watch the patients and in not providing more than one nurse in the ward? These questions may be examined together, because they are to be determined by the same consideration—viz.: whether the circumstances of the case required more attention than was actually bestowed upon the deceased or upon the cases in the ward in question at the time of this accident.

This question may be viewed from the standpoint of the plaintiff's contention, that the hospital would be liable for the actual negligence of its physician and nurse, without regard to the fact that it had exercised due care in their selection. This is questionable upon the authorities, for in regard to the liability of a corporation for the acts of its servants, a distinction is made with respect to public charitable hospitals, it having been held with good reason that they are not liable for injury to a patient caused by the acts of their agents, where it is shown that they have exercised due care in selecting such agents (Prior *vs.* Hamilton Eye and Ear Hospital, 4 *N. Y. Law Journal*, 450, Nov. 25, 1890; McDonald *vs.* Massachusetts General Hospital, 120 Mass., 432). The last case is cited in Laubheim *vs.* DeKay N. S. Co. (107 N. Y., 230), where, in respect of a steamship company carrying passengers, it was held if the carrier is to provide a surgeon for its ships, its duty to the passenger is to select a reasonably competent man for the post, and is liable only for a neglect of that duty.

The hospital authorities, in making rules for night attendance by physicians, and for personal inspection and watching of patients, and in providing the force of night nurses, was bound only to the degree of care proportionate to the danger to be apprehended, judged by the condition of affairs before the happening of the accident. "That which never happened before, and which, in its character, is such as not to naturally occur to prudent men to guard against its happening at all, can not, when in the course of years it does happen, furnish good ground for a charge of negligence in not foreseeing its possible happening and guarding against that remote contingency" (Hubbell *vs.* City of Yonkers, 104 N. Y., 434). There is no negligence in not making other arrangements when there is no reason to apprehend an accident such as occurred (Loftus *vs.* U. F. Co., 84 N. Y., 455); and there is no liability except for the natural or probable, and therefore the direct consequences of the acts complained of.

There is nothing in this case to show that the house surgeon, or the nurse in attendance, or the hospital authorities had any reason to apprehend any mental aberration of the deceased, much less the particular accident of the night in question. If the fact that the deceased attempted to get out of bed about one o'clock was sufficient to call for immediate attention, it was given. The nurse reported the fact instantly to the physician, who immediately prescribed a sedative, which was administered. After that the patient was quiet for about three hours, and there was no further ground for apprehension. If the attempt to get out of bed was indicative of mental disturbance, the fact that the patient listened to the nurse's argument and complied with her remonstrance, showed that she was amenable to reason. But if there were any want of care in not placing a special watch upon the deceased all that night to see that she did not leave her bed, the consequences of neglecting to do so were too remote to fasten legal responsibility upon the house surgeon or the hospital authorities. An injury to her health, due to interference with the success of her operation by her incautious movements, is the utmost that could in reason be apprehended. Her death in the manner detailed was not to be expected. It was not shown that there was any possible ground for apprehending a suicidal tendency on her part. But there was, in fact, no care omitted. While the nurse's back was turned for a brief period, the deceased stealthily rose from her bed, escaped from the room, and leaped from the window. This was after the patient had been quiet for fully three hours. Even at one o'clock, when she had attempted to get out of bed, the nurse had left the ward altogether to go and inform the house surgeon, and yet the deceased had not then attempted to escape.

Upon all the facts of the case, therefore, it was proper to dismiss the complaint, as there was no proof of want of care on the part of the hospital authorities, the surgeon, or the nurse. There were no rulings that prejudiced the plaintiff. His exceptions should be overruled and his motion for a new trial denied and judgment ordered for the defendant.

The American Dermatological Association.—The preliminary programme of the meeting to be held in Washington on September 22d, 23d, 24th, and 25th, includes the following: Address by the president, Dr. F. B. Greenough, of Boston; discussion on Tuberculosis of the Skin, to be opened by Dr. White and Dr. Bowen, of Boston, and Dr. Fox, of New York; A Therapeutic Note on Alopecia Areata, by Dr. L. D. Bulkley, of New York; The Treatment of Alopecia Areata, by Dr. P. A. Morrow, of New York; Remarks on Carbuncle, with the Report of a Peculiar Case, by Dr. H. G. Klotz, of New York; Dermatitis Hæmostatica, by Dr. H. G. Klotz, of New York; Note on Erythema et Nævus Nuchæ, by Dr. C. W. Allen, of New York; A Case of Lichen Ruber, by Dr. J. Grindon, of St. Louis; A Case of Lichen Scrofulosorum, by Dr. J. Grindon, of St. Louis; A Case of Lupus Erythematosus with Fatal Complications, by Dr. W. A. Hardaway, of St. Louis; Lymphangeioma Circumscriptum, with the Report of a Case, by Dr. M. B. Hartzell, of Philadelphia; Notes of a Case of Acute Dermatitis Exfoliativa, by Dr. J. E. Graham, of Toronto, Canada; The Morphœa Atrophica of Wilson, by Dr. R. W. Taylor, of New York; A Study of Mycosis Fungoides, with the Report of a Case, by Dr. H. W. Stelwagon and Dr. H. Leffingwell Hatch, of Philadelphia; Diseases of the Skin associated with Derangements of the Nervous System, by Dr. W. T. Corlett, of Cleveland; Prairie Itch, by Dr. L. N. Denslow, of St. Paul; The Treatment of Pruritus, by Dr. E. B. Bronson, of New York; A Note relative to Pemphigus Vegetans, by Dr. J. N. Hyde, of Chicago; The Personal Equation in Dermatology, by Dr. L. D. Bulkley, of New York; An Unusual Case of Sarcoma involving the Skin of the Arm; Amputation; Recovery, by Dr. F. J. Shepherd, of Montreal, Canada; Multiple Sarcomata: History of a Case showing Modification and Amelioration of Symptoms with large Doses of Arsenic, by Dr. S. Sherwell, of Brooklyn; Thirteen Cases of Tuberculosis of the Skin with their Treatment, by Dr. J. S. Howe, of Boston; The Treatment of Chronic Ringworm in an Institution for Boys, by Dr. L. A. Duhring, of Philadelphia; Report of a Case of Universal Erythema Multiforme, by Dr. L. A. Duhring, of Philadelphia; Notes of a Visit to the Leper Hospital of San Remo, Italy, by Dr. L. A. Duhring, of Philadelphia.

The Congress of American Physicians and Surgeons.—Circular No. 1, dated Washington, June 24, 1891, reads as follows:

The committee of arrangements takes great pleasure in announcing to the members and invited guests that the arrangements are sufficiently advanced to assure the success of the second triennial session of the Congress of American Physicians and Surgeons, which will be held in this city during the 22d, 23d, 24th, and 25th of September, 1891. A number of distinguished physicians and surgeons from abroad have accepted the invitation to attend, among whom may be named Mr. Thomas Bryant, Mr. B. E. Broadhurst, Mr. A. E. Durham, Mr. Reginald Harrison, Surgeon-General Sir W. E. McKennin, Mr. U. Pritchard, Mr. F. Treves, Sir William MacCormac, Dr. James G. Glover, and Dr. William M. Ord, of London, England; Dr. McCall Anderson and Dr. W. T. Gairdner, of Glasgow; Mr. E. H. Bennett and Professor J. J. Cunningham, of Dublin; Professor John Chiene and Dr. J. Battey Tuke, of Edinburgh; Professor H. Krause and Dr. F. Beeby, of Berlin; Professor Curschmann, of Leipsic; Professor Hoffa, of Würzburg; Professor Kuhne, of Heidelberg; M. Emil Juval, M. E. Landolt, and Dr. Pozzi, of Paris; Dr. A. Mosso, of Turin; Dr. von Mozengeil, of Bonn; Dr. Lowenber, of Paris; and Dr. Rafail Lavista, of Mexico. The sessions of the congress will be held in the main hall of the Grand Army Building, 1412 and 1414 Pennsylvania Avenue, from 3 to 6 P. M., daily. The president's address will be delivered in the lecture hall of the National Museum, Wednesday, September 23d, at 8 P. M., followed by the reception of the president, from 9.30 till 12. Order of executive committee. The Army Medical Museum will be open the same evening. The sessions of the societies will be held according to the programmes of each, respectively, in the places as follows: American Surgical Association, main hall, Grand Army Building, 1412 and 1414 Pennsylvania Avenue; Association of American Physicians, hall No. 1, Grand Army Building, 1412 and 1414 Pennsylvania Avenue; American Climatological Asssciation, hall No. 2, Grand Army Building, 1412 and 1414 Pennsylvania Avenue; American Gynæcological Society, lecture hall, Columbian University, 15th and H Streets, N. W.; American Laryngological Association, parlor A, Arlington Hotel; American Neurological Association, parlors 182 and 183, Arlington Hotel; American Orthopædic Association, new reception room, Arlington Hotel; American Otological Society, ladies' parlor, No. 1, Arlington Hotel; American Ophthalmological Society, ladies' parlor, No. 2, Arlington Hotel; American Physiological Society, parlor 181, Arlington Hotel. The officers of the American Dermatological Association and the American Association of Andrology and Syphilology have made their arrangements with the Shoreham for places of meeting. Office of registration, parlors 1 and 2, Arlington Hotel. From this office the mail of members and guests will be distributed, and the city residence of each member or guest can be ascertained. The Association of American Anatomists will meet in this city during the sessions of the congress, and will occupy hall No. 3, Grand Army Building. The American Pædiatric Society will meet here September 23d and 24th, in the lecture hall of Columbian University, 15th and H Streets, N. W.

The congress will be composed of the members of the constituent societies and invited guests. A registration fee of five dollars will be required of every member of the constituent societies who may register; invited guests will not pay the fee. Order of executive committee.

Participating societies can "accredit visitors to the congress, who shall pay the registration fee, but shall not be privileged to participate in the deliberations of the congress." Order of executive committee. A copy of the transaction of the congress will be sent to each person who may register. Only those who may register, invited guests, and ladies accompanying them will be admitted to the reception of the president. Secretaries of constituent societies are requested to supply this committee with the names and addresses of "accredited visitors." The evenings of Tuesday, September 22d, and Thursday, September 24th, are left to the societies. Members of the American Surgical Association and of the Association of American Physicians will conjointly entertain their foreign guests at dinner at the Arlington Hotel, Thursday, September 24th, at 8 P. M. The American Gynæcological Society has also arranged for a dinner at the Arlington Hotel, Thursday evening, September 24th. The American Pædiatric Society will give a dinner September 24th. Other societies that intend to entertain their foreign guests are requested to communicate with this committee. Arrangements are in progress to secure reduction of railway fares. As soon as completed, the information will be communicated to each member and "accredited visitor." The Arlington Hotel offers accommodations at the rate of four dollars a day, and the Hotel Arno offers rates "on the American plan at three and four dollars a day, on the European plan at one dollar a day. Exclusive use of bath one dollar extra." A blank certificate of registration will be sent to each member and "accredited visitor." The committee requests each person receiving such certificate to fill the blanks and return it, with the fee, to Dr. John S. Billings, treasurer of the congress. The American Pomological Society, and perhaps other societies, will meet in this city September 22d–25th. The committee therefore suggest to the members an early arrangement for hotel accommodations. Inquiries relating to railway fares must be addressed to Dr. S. S. Adams, 1632 K Street. A complete roster of membership of the congress has been prepared, with post-office address and society to which each member belongs. The committee will take pleasure in answering any inquiry relating to the local arrangements of the congress.

[Signed.] SAMUEL C. BUSEY, M. D., *Chairman*,
1545 I Street, N. W.;

JOHN S. BILLINGS, M. D.,
Army Medical Museum;
W. W. JOHNSTON, M. D.,
1603 K St., N. W.;
R. T. EDES, M. D.,
1214 18th St., N. W.;
S. O. RICHEY, M. D.,
732 17th St., N. W.;
J. TABER JOHNSON, M. D.,
1728 K St., N. W.;

I. E. ATKINSON, M. D.,
605 Cathedral St., Baltimore;
C. F. BEVAN, M. D.,
807 Cathedral St., Baltimore;
SAMUEL JOHNSON, M. D.,
204 Monument St., Baltimore;
SAMUEL THEOBALD, M. D.,
304 Monument St., Baltimore;
H. NEWELL MARTIN, M. D.,
Johns Hopkins Hospital, Baltimore;

DE FOREST WILLARD, M. D., 1818 Chestnut St., Philadelphia.

The late Dr. Fordyce Barker.—The following is an extract from the minutes of the faculty of the Bellevue Hospital Medical College:

In view of the death of our late colleague, Dr. Fordyce Barker, the members of the faculty of the Bellevue Hospital Medical College recall with pride the eminent services rendered to the college by him at its foundation, and his brilliant career as a teacher while actively associated with us. He leaves us a life full of noble memories. We regard his death with deep sorrow, and feel that the medical profession has lost in him one of its distinguished ornaments.

We extend to his family our heartfelt sympathies.

WILLIAM T. LUSK, *President*,
[Signed.] R. OGDEN DOREMUS, } *Committee.*
A. ALEXANDER SMITH,

It was resolved that the faculty attend the funeral of their late colleague, Dr. Parker.

[Signed.] AUSTIN FLINT, *Secretary.*

The New York Academy of Medicine, through a committee consisting of Dr. A. Jacobi, Dr. W. T. Lusk, and Dr. A. A. Smith, has thus expressed itself:

The New York Academy of Medicine mourns in Dr. Fordyce Barker the loss of one of its oldest members, who for six successive years was its president, and, by his peculiar traits of character and the interest he displayed in the success of its work, contributed largely to its development and rise. His earnestness of purpose secured for him the respect of his fellow-practitioners, his teaching the esteem of large audiences, his writings the appreciation of the medical profession both in our country and abroad, and the never-disturbed kindliness of his disposition and his incomparable urbanity of manners the admiration of hosts of friends. His departure will long be deplored, both by his medical brethren and the public, and long will he be missed on the floor of the hall of the Academy which he graced by his very presence.

A Further Communication on a New Method of compressing the Subclavian Artery.—At a meeting of the Philadelphia County Medical Society, held on May 27th, Dr. W. W. Keen read the following:

I desire to call the attention of the society to the method which I proposed some time since for controlling the circulation in the upper extremity by elastic compression of the subclavian artery (*Transactions of the Philadelphia County Medical Society*, February, 1890). This, it will be remembered, was effected by a pad over the subclavian, held in place by the ordinary rubber bandage of the Esmarch apparatus, the elastic bandage being carried from the chest over the back and then alternately between the thighs and in the opposite armpit.

Not long after I made the suggestion I made a trial of it for my friend Dr. Hearn, in the clinic at the Jefferson Medical College Hospital. In this case the application was a failure. The failure, I think, arose from two reasons: First, the man had a very prominent clavicle and a deeply seated first rib; and, secondly and chiefly, the pad used was the ordinary roller bandage. The conical graduated pad, as suggested by Dr. Parkes below, is far better.

I received a letter from the late Professor Charles T. Parkes, of Chicago, dated October 24, 1890, recording his use of it in another case in which the absolute control of the subclavian was almost a *sine qua non* for the perfect operative procedure, and in which the method, submitted to such a crucial test, succeeded so well that I venture to quote from his letter. I need scarcely point out that all our former methods for controlling the artery would not have given such command of the circulation as to make the deliberate dissection and ligation practiced by Dr. Parkes a possibility:

"Allow me to congratulate you on the perfect success of the plan recommended by you for the control of the circulation in the upper extremity. The adoption of it yesterday enabled me to carry to a successful issue an operation for the relief of an immense traumatic aneurysm of the axillary space, following a laceration of the axillary artery by a bullet from a heavy ·45-caliber revolver. After the application of the rubber band in the manner you recommend with a compress over the subclavian artery, I laid the aneurysm wide open, cleaned out all the clots, and finally found a large tear in the artery, and applied a ligature above and below it without the patient losing any blood. Twelve hours after the operation circulation was so far restored in the limb as to make a successful termination almost certain. I attribute the ease and readiness with which the difficult procedure was accomplished to the perfect control of the circulation permitted by the adoption of your plan. It is certainly of great value. If an amputation at the shoulder joint had been required it could have been done without the loss of a drachm of blood.

"No more trying test could be given to the method than the case in which I used it. A traumatic aneurysm in the axillary space from a large wound in the artery is certainly one of the most difficult things we have to deal with. The application of the bandage in this case enabled me to work deliberately and with perfect ease. No motion on the patient's part can displace it.

"I think the character of the pad used under the bandage and over the artery has much to do with the success of the method. This pad should be somewhat in the nature of a graduated compress, small enough at its apex to fit into the interval between the clavicle and the first rib, and yet thick enough and firm enough to reach well above the clavicle and the side of the neck, so as to take all the pressure off the rubber."

To answer this purpose I have had a wooden pad made. The beveling of the top is for the purpose of enabling the rubber bandage to hold it in place and prevent its slipping either inward or outward. The two holes at the sides and end are for a removable handle, resembling a two-pronged fork, with which to hold it while applying it.

I have tried a similar but larger pad for the iliac arteries, but so far its experimental use has not been satisfactory.

The American Association of Obstetricians and Gynæcologists will hold its fourth annual meeting, at the New York Academy of Medicine, 17 West Forty-third Street, in the city of New York, on Thursday, Friday, and Saturday, September 17, 18, and 19, 1891, under the presidency of Dr. Adam H. Wright, of Toronto. All physicians interested in the discussion of subjects pertaining to abdominal surgery, obstetries, and gynæcology are invited to attend without further formal notice.

The Boston City Hospital Club.—The third annual meeting and dinner of the club was held at the Hotel Thorndike, on June 9th. The following officers were elected: President, Dr. Oliver F. Wadsworth; vice-president, Dr. J. F. A. Adams, of Pittsfield; secretary, Dr. Rufus A. Kingman; treasurer, Dr. Silas H. Ayer.—*Boston Med. and Surg. Jour.*, June 18th.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for June 26th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.....	June 20.	1,515,301	952	85	..	..	..	..	..	2	33	27	16	9
Chicago, Ill..........	June 20.	1,099.850	448	41	..	..	..	..	..	45	5	12	6	1
Philadelphia, Pa.....	June 13.	1,046,964	....	....	..	..	..	..	..	11	4	8	..	....
Brooklyn, N. Y......	June 20.	806,343	436	44	..	..	..	.	..	..	12	15	5	4
St. Louis, Mo.........	June 20.	451,770	....	....	..	..	..	..	..	2	2	2	1	....
Boston, Mass	June 20.	448,477	210	27	..	..	..	..	..	2	..	4	1	....
Baltimore, Md.......	June 20.	434,439	137	11	..	..	..	..	..	3	4	4	..	1
San Francisco, Cal...	June 13.	298.997	115	10	..	..	..	.	..	2	..	9	..	....
Cincinnati, Ohio.....	June 19	296,908	117	10	..	..	..	..	..	7	..	..	2	....
Washington, D. C....	June 20.	230,392	140	6	..	..	..	..	..	1	..	3	1	....
Detroit, Mich........	June 20.	205,876	65	3	..	..	..	..	..	..	..	3	..	....
Milwaukee, Wis......	June 13.	204,468	89	7	..	..	..	..	..	..	..	3	3	4
Milwaukee, Wis......	June 20.	204,468	86	9	..	.	..	..	..	..	1	5	..	2
Louisville, Ky	June 5.	161,129	44	3	..	..	..	..	..	..	1	2	1	....
Louisville, Ky	June 13.	161,129	52	....	..	..	..	..	..	..	1	1	..	7
Louisville, Ky	June 20.	161,129	63	2	..	..	..	..	..	3	3	4	..	....
Rochester, N. Y......	June 20.	133,896	41	3	..	..	..	..	..	..	..	3	..	....
Providence, R. I.....	June 20.	132,146	49	....	..	..	..	..	..	..	..	3	..	1
Indianapolis, Ind....	June 20.	105,436	55	7	..	..	..	..	..	2	..	4	..	....
Toledo, Ohio.........	June 19.	81,434	..	....	..	..	..	..	..	..	..	1	..	....
Richmond, Va.......	June 13.	81,388	37	5	..	..	..	..	..	..	..	1	..	....
Richmond, Va.......	June 20.	81,388	64	11	..	..	..	..	..	..	..	1	..	....
Nashville, Tenn	June 20.	76,168	40	....	..	..	..	..	..	..	..	.	..	....
Lynn, Mass..........	June 13.	55,727	21	....	..	..	..	..	..	..	..	2	..	....
Lynn, Mass....... ..	June 20.	55,727	17	1	..	..	..	..	..	..	..	..	..	....
Portland, Me.........	June 20.	36.425	16	....	..	..	..	..	..	..	..	..	1	....
Binghamton, N. Y...	June 20.	35,005	8	1	..	..	..	..	..	..	..	..	..	....
Yonkers, N. Y.......	June 20.	32,033	14	1	..	..	..	..	..	..	..	..	..	....
Galveston, Texas....	May 29.	29,084	15	2	..	..	.	..	..	..	..	..	..	....
Galveston, Texas....	June 5.	29,084	20	2	..	..	..	..	..	..	..	..	..	....
Auburn, N. Y........	June 20.	25,858	12	4	..	..	..	..	..	..	..	1	..	....
San Diego, Cal.......	June 13.	16,159	2	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.......	June 13.	11,750	12	3	..	..	..	..	2	..	..	..	..	....

Worse than Vivisection.—The *Medical News* says:

There are few things occurring in our modern life more fitted to give one severe moral nausea than the outrageous facts, none too plainly exposed by a writer in the April number of the *Nineteenth Century*, in a description of the hideous agonies suffered by cattle during their transfer from their prairie homes to the English abattoirs. It is plain that, far from exaggeration, the worst part of the matter is touched as lightly and with as little insistence as possible. It would seem impossible that men and women with the faintest remnants of humanity and kindness yet remaining in their hearts would, for the saving of a paltry penny or two per pound in their purchase of meat, command such things to be done. But, apart from these aspects of the question, one can not forbear asking what may be the physiological effect of such meat upon the human organism. If the milk of an angry human mother or a sexually excited cow will, in a child, produce very serious illness, what may not be the effect of the eaten flesh of these animals, beaten as they have been, bruised, starved, trodden to death, stifled, the whole organism every moment for weeks a quivering mass of fever, pain, and passion? The writer of the article in question thus closes his story:

"It was found impracticable to fatten up range cattle on their arrival in England, and, after a few days' rest to allow them to recover from their fevered condition, all these cattle were sold for immediate slaughter. They were fat when they left the range; at the end of their month's journey they were not only reduced to mere frames, gaunt and narrow beyond belief of people who have seen cattle only in the fields and farm-yards of England, but with their sterns rubbed raw and swollen out of all natural shape, their legs also swollen and in many cases raw around the fetlocks, and with their hides scored with horn-marks. When one considers the amount of bruising which these external marks represent and the way in which steers had been thrown about in the pens by the motion of the vessel, it is difficult to suppose that any of the little beef that is on them can be healthy human food. I can only suppose it is made into sausages."

It is greatly to the credit of our Government that the Secretary of Agriculture has issued the most stringent and detailed orders, which to some extent will lessen the horrors of the ocean passage.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, July 11, 1891.

Original Communications.

FURTHER IMPROVEMENTS IN THE ADAPTATION OF THE EDISON CURRENT TO GENERAL OFFICE USE.*

By HENRY G. PIFFARD, M. D.

In the *New York Medical Journal* of June 7, 1890, I published the description of a method that I had devised whereby the illuminating current from the street could be conveniently utilized and made to take the place of the galvanic batteries in ordinary use. An experience of more than a year in the use of the street current has clearly satisfied me as to its range of application and great convenience.

During this period, however, I have extended the scope of the instrument heretofore described, and have added certain improvements to which I ask attention in the present paper.

From the device as now constructed we can obtain the continuous galvanic current, the slowly or rapidly fluctuating galvanic current, and the primary and secondary faradaic currents. In addition, we can, with its aid, charge a storage battery or light a miniature incandescent lamp. A careful study of the accompanying diagram will show how these results are accomplished.

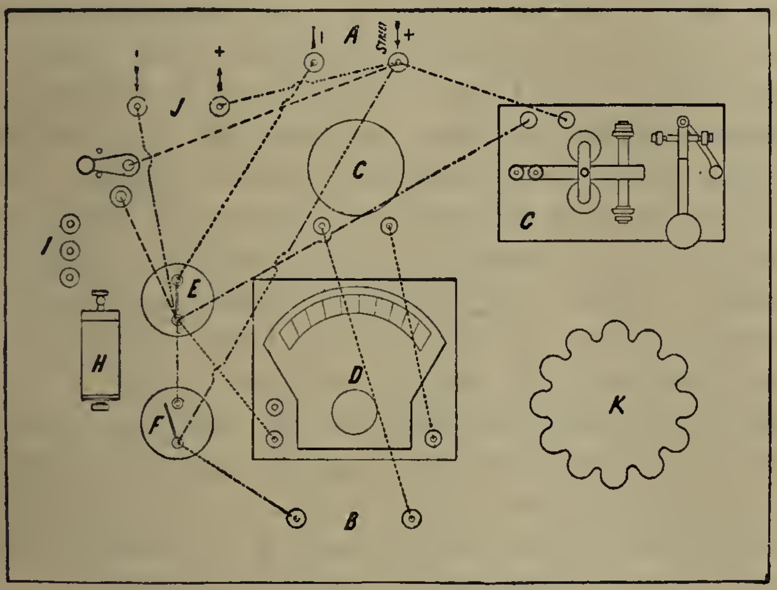


Fig. 1.—Wire-plan of the author's adapter.

A represents the attaching posts which bring the instrument into connection with the current of the dynamo.

B represents the terminals between which the patient is included.

C represents the rheostat.

D represents the milliampèremeter.

E represents a 16-candle-power incandescent lamp having an approximate resistance of 240 ohms.

F is also an incandescent lamp of 16, 32, or 50 candle-power, as may be desired, whose resistances are, respectively, 240, 120, and 80 ohms. Lamps with resistance as low as 10 or 12 ohms may be also readily obtained and used; or a plug with a resistance of but a fraction of an ohm may be inserted.

G is an ordinary telegraph sounder.

H is an ordinary faradaic coil.

I are the terminals of the coil.

J are the attaching posts for charging a storage battery or illuminating an incandescent lamp.

K is a vessel of water for moistening the sponges.

If the diagram be carefully studied it will be perceived that we have made in this adapter provision for six independent circuits, either of which may be used by itself, or in some cases two may be in simultaneous use.

For convenience, I will name these as follows:

I. The direct circuit, starting from the post which receives the positive current from the dynamo, runs thence to *one side* of lamp F, thence to the positive terminal, thence through the human portion of the circuit to the negative terminal, and thence through the rheostat, milliampèremeter, and lamp E to the post which returns the current to the dynamo.

II. *The Shunt Circuit.*—It will be noticed that in the diagram the two sides of lamp F are not connected, and as long as such is the case no current can pass through it. If, however, we turn the key, the circuit through this lamp is completed and we have a shunt current commencing at the positive attaching post at A, and running to and through lamp F, thence through lamp E and back to the dynamo. We now have two circuits in simultaneous operation;—namely, the direct, which passes through the patient, and the shunt current, which does not. Now, the less the resistance in lamp F, the greater will be the amount of current that is drawn off. By turning this lamp off and on, shocks of greater or less violence, depending on the amount of resistance at F, may be given. With healthy muscles and nerves, contractions will, of course, follow the make and break in this shunt circuit.

III. The telegraph key at G performs virtually the same functions, except that the sounder has a constant resistance of 20 ohms. It is hardly necessary, therefore, to have both the lamp F and the sounder G, and I have attached them both to my own apparatus simply for the purpose of ascertaining which would prove of the greater practical convenience. If only one were used, I should prefer to retain the sounder G and dispense with the F lamp.

IV. *The Fluctuating Current.*—If, with the patient still in the direct circuit between the terminals at B, we also close the circuit through the faradaic coil, this latter will act as a shunt to the former and the result will be a rapidly fluctuating current. The resistance of the coil being very slight, the greater part of the current will flow through it when its circuit is closed, leaving but a small residuum to pass through the direct circuit at B. As soon, however, as the coil current is broken, the whole current again passes through the patient at B. These fluctuations in the strength of the current will, of course, depend on the rapidity with which the rheotome makes and breaks the coil circuit. It approximates the ordinary alternating current in character, and will exhibit many of the phenomena which characterize it, such as the production of tonic contractions, etc.

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* Read before the Medical Society of the County of New York, May 25, 1891.

V. *The Faradaic Currents.*—If the patient is now transferred from the terminals at B to those at I, he will receive the ordinary primary and secondary induction currents.

It will thus be seen that with the adapter as now arranged the operator has at command all of the appliances that are found in connection with the most elaborate cabinet batteries and faradaic machines; and, in addition, an arrangement for using the fluctuating current, which has hitherto been but little, if at all, employed.

VI. *The Charging Current.*—If, further, we have occasion to charge a storage battery, this is readily accomplished by connecting it with the terminals at J, and replacing the 16-candle-power lamp at E by one adapted to the capacity of the battery to be charged. The smaller lamp is well adapted to charging a 10 or 15 ampère-hour battery; but with batteries of larger capacity, a 32, 50, or 100 candle-power lamp may be used. As a matter of ordinary prudence, however, the maker of the battery should be consulted as to the size of lamp to be employed, as a 100-candle-power lamp giving 3 ampères of current would soon play havoc with a small storage cell. A safe rule to follow, however, is not to let your current exceed 1 ampère for every 20 ampère-hours capacity of battery.

Miniature lamps of 2, 4, and 6 candle-power can likewise be attached to the terminals at J, provided a suitable lamp is inserted at E. The small diagnostic lamps of 4 and 6 candle-power usually require a current of about 1 ampère, which would necessitate the use of a 32-candle-power ordinary lamp at E.

The adapter, as a whole, is shown in Fig. 2.

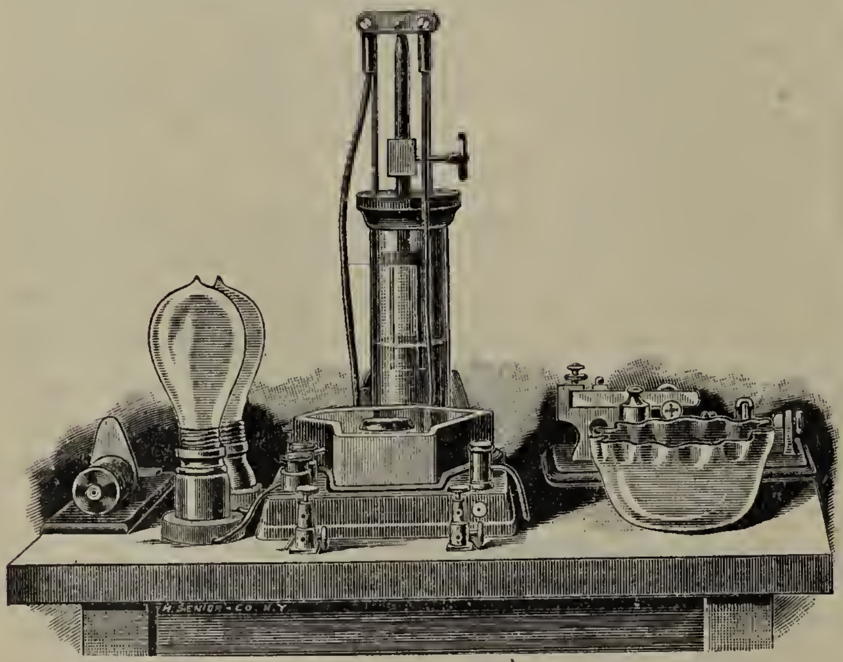

FIG. 2.—The author's adapter for the Edison current.

With this instrument the various electro-therapeutical and electrolytic applications can be made with the greatest certainty and ease, provided the rheostat and milliampèremeter are well constructed and suitable instruments, which is far from being always the case. In selecting a rheostat I made trial of the principal ones in the market, first trying a couple of water rheostats made by a firm in this city; these were unreliable and practically worthless. I next tried several carbon rheostats, including the Massey, the Gaertner-Leiter, the Lewandowski, and others. The first of these would not answer at all, while the second would not carry a current of above 30 milliampères without heating. The third was capable of carrying a stronger current, but possessed other objectionable features. Returning again to water, I purchased the well-known Bailey rheostat. This instrument is efficient, but is bulky and more elaborate in construction than necessary, and is not well adapted for use on a movable table. At present I have in use a modified "Bailey," constructed for me by Ford, in which the good features of the Bailey are preserved, while the unnecessary incumbrances are omitted. It can be constructed at less cost than the original instrument, and I find it much more convenient in use.

The choice of a milliampèremeter is by no means a matter of indifference. They can be obtained at prices varying from fifteen to sixty dollars; in this case, the one costing the most is unquestionably the best. The Weston milliampèremeter is an instrument of precision, and is generally conceded to be the best one made. It is the one shown in the drawing. It has two scales, reading from 0 to 50 and from 0 to 500, respectively. The McIntosh, costing but twenty-five dollars, is a reliable instrument, and will prove quite satisfactory. There may be other good instruments at a moderate price, but it has not been my fortune to meet with them.

In constructing this adapter a few minor details require attention. The double cord which conveys the current from the electric receptacle to the adapter has the usual attaching plug at one end, while the other should terminate in two brass sockets, which fit over the attaching posts at A. The sockets should have a short piece of rubber tubing drawn over them, in order that there will be no short circuiting should they accidentally come in contact. After the cord has been attached to the receptacle it is important first of all to determine which of the wires conveys the positive current. This should be marked in some distinguishing manner, and then be attached to the proper post on the adapter at A. Should you have occasion to use a different receptacle, first determine the direction of the current before permanently attaching the cords to the adapter. A neglect of this may lead to injury of some forms of milliampèremeter, while a current passed in the wrong direction in charging a storage battery will probably ruin it.

For a long time I have been dissatisfied with some of the minor appliances used in electro-therapeutics, and especially with the customary sponge-covered electrodes. Many physicians will keep the same sponge in use for weeks, perhaps for months. This is not cleanly; and I have more than once noticed that the patient looked askance at the dirty sponge, wondering probably who had used it last. If a ten-cent barber can give a clean towel with every shave, we certainly ought to be able to treat our patients with at least the same consideration. To make this practicable, however, it is necessary that we should have covers for the electrodes that can be renewed as required at the least expenditure of time and trouble. I have endeavored to fulfill this indication by having a groove cut around the metallic head of the electrode, into which an elastic ring is fitted.

The head of the electrode is padded with a layer of absorbent cotton, over which two thicknesses of cheese-cloth are applied, and the whole kept in place by the elastic ring. These coverings can be adjusted and changed in a minute; and I believe that no one who once tries them will ever return to the filthy sponges. After an electrode has been in use for some time its metallic face will become more or less corroded; even the best nickel-plate will not protect it. To obviate this I have the electrodes faced with a thin sheet of platinum. Such a platinum face, one one-hundredth of an inch in thickness, soldered on to the brass, will preserve a bright and polished surface indefinitely. This is especially necessary when we seek to introduce metallic or other salts by means of cataphoresis. A very convenient method of employing cataphoresis is to take one of the electrodes and cover the end with a couple of thicknesses of blotting-paper, which is retained in position by the elastic ring. The paper is then moistened with the medicated solution and connected with the positive or negative pole of the adapter or of a battery. A good deal of misapprehension exists as to this matter of cataphoresis, and a recent article on the subject in one of the journals tends rather to becloud than simplify the subject. The inferences that the reader would naturally draw from the article in question are, first, that the medicated solution should always be applied to the anode or rheophore supplying the positive current, and, second, that certain salts —such as hydrochloride of cocaine, iodide of potassium, etc. —are diffused directly into the system by means of the electric current. There is no evidence whatever on which to base these assumptions. Salts in solution are electrolyzed or decomposed by the galvanic current, and acids, oxygen, and the haloids seek the positive, while alkalies and basic bodies seek the negative pole. Clinical experience agrees with theory, and shows that if the anode is moistened with a solution of a salt of cocaine, the physiological effects of the drug will be manifested. In this case the hydrochloric acid remains on the rheophore, while the basic cocaine penetrates the skin, which in this instance acts as the negative. If, however, we desire to obtain the effects of iodine from the iodide of potassium, the cathode, not the anode, should be moistened with the solution. The possibility of cataphoresis has been denied by some, but the writer's experiments, made many years ago, satisfied him that certain drugs could be introduced into the body in this manner, but also satisfied him that the method had little practical value. Anæsthesia by the anodal diffusion of cocaine may prove a novelty to the patient, and impress him accordingly, but a few drops of the solution injected with a syringe will answer all practical requirements in the vast majority of cases.

Electricity as a therapeutic agent is lauded by some, practiced by many, and despised by perhaps the majority of practitioners, who have used it for a while and then discarded it from their therapeutic armamentarium. I believe this is due to the fact that very few have really taken the trouble to study the attributes and properties of this powerful force. Within the last six months I have met with several remarkable instances where writers report their electric results with the most striking disregard of known facts in electro-physics. One gentleman stated that, using a one-hundred-ampère-hour storage cell, he had passed a current of one hundred ampères through a nævus for five minutes, and, using two such cells, had passed a current of two hundred ampères for three minutes, and he wondered why the milliampèremeter in the circuit gave no indication of any current. As a matter of fact, the current that actually circulated was probably only about $\frac{1}{100000}$ of what the writer supposed. Assuming the resistance of the body at two thousand ohms, and the electro-motive force of the cell at two volts, we should have, by Ohm's law, C. = $\frac{2}{2000}$ = one milliampère.

Two weeks later a correspondent criticised the article, and objected to the use of currents of such *high electromotive force!*

This was a blunder as grave as had been committed in the first instance, and yet both articles appeared in a journal of large circulation and high repute.

Another gentleman reported that he had treated a number of cases of pelvic disease by the Apostolic method, using a current of "one hundred and twenty milliampères," and also a current having a "resistance of one hundred and twenty milliampères."

When articles of this character are admitted into the columns of prominent medical journals, we can hardly expect any rapid advance in electro-therapeutical science.

It is but a few years since the milliampèremeter was introduced as an essential feature of an electric outfit designed for therapeutic use or physiological experimentation. This instrument indicates simply the amount of current in circulation, but does not in any manner indicate the quantity of electric energy that is being expended on the tissues. This can only be determined by the use of an additional measuring instrument, known as the voltmeter,* used in connection with the milliampèremeter, the readings of both being taken at the same time. With these two instruments almost any measurement required in electro-therapeutics or in electro-physiology can be made.

At the present moment we have very little definite information concerning the resistance offered by the human body to the passage of the electric current. Some authorities place the average resistance as low as fifteen hundred ohms, while others state that it is as high as fifty thousand ohms. My own experience would lead me to place it at about two thousand ohms—that is, when the current passes through moistened sponges and through two thicknesses of skin. The subject, however, is one that should be reinvestigated with care and with the aid of modern instruments of precision. There are two ways whereby these resistances may be determined—on the one hand by the employment of a Wheatstone bridge and testing battery, and on the other by the combined use of a milliampèremeter and a voltmeter. While either method is theoretically accurate, it would be well to employ them both, in order that the results obtained by one may be verified and controlled by the other. Voltmeters cost from twenty dollars upward, but the Weston, costing about sixty dollars, is without question the best.

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* This must not be confounded with the voltameter, which is quite a different instrument.

Turning now from the medical to the surgical aspect of the Edison current, I will quote a paragraph from my first paper as follows: "On prudential grounds, therefore, it is not wise to attempt to use the Edison current direct for galvano-cautery purposes. The only feasible and practicable way is to use it indirectly through the medium of an accumulator or so-called storage battery."

I leave the first sentence of this quotation as originally written, merely adding that I have experimented with the direct current, and find that the heat in the knife can be kept under perfect control by the simple addition of a suitable variable resistance, but the heat in the other parts of the circuit is too great to be conveniently disposed of.

The second sentence of the quotation, however, needs modification, as I have devised another and better way of using the current than through the medium of a storage battery. As stated in my former paper, the electric current from the street passing into a storage battery exhausts itself in producing certain chemical changes in the parts with which the battery plates are coated. When these plates are afterward connected with a wire, chemical action is reconverted into electricity, but of a lower potential than that of the original street current. During my experiments it occurred to me that it would possibly be better to convert the street current into motion (instead of chemical action) and then to reconvert the motion into electricity of lower potential so as to approximate the current of an accumulator. With this end in view I visited the office of the C. & C. Electro-motor Co., of this city, and asked them if they would be willing to construct a combined motor and dynamo capable of giving the current I desired. They stated that they had just finished such an apparatus with a view to its use in connection with telegraphy, and kindly offered to place it at my disposal for further experimentation.

By the addition of a rheostat or other extraneous appliances, I was able to secure an instrument that fully meets all office requirements, both for motor and for cautery work. It is here shown in its complete form (Fig. 3).

The apparatus consists—

1. Of a $\frac{1}{8}$ horse-power "C. & C." electro-motor constructed to work on a circuit having a potential of 110 to 120 volts.

2. By the side of the motor is a small dynamo which is connected with it mechanically by means of a common shaft or axle which carries the armatures of both machines. The motor is also connected to the dynamo electrically in such way that a portion of the original current is permitted to circulate through the field of the latter. This connection may be easily broken whenever we desire to use the motor alone for mechanical work. The dynamo is marked 2 volts and 30 ampères, which is of course equal to 60 watts, but the machine has in reality a greater capacity than indicated, my own being capable of developing a little over 70 units of electric energy.

3. A small cautery knife requires about 20, a medium 30, and a large one about 40 ampères of current to bring it to a white heat. The 35 ampères, therefore, which the dynamo is capable of giving is too strong a current for the smaller knives and would melt them. To obviate this a rheostat is necessary, and the one I use is constructed from German-silver wire of No. 12 (B. & S.) gauge, and about one hundred and eight inches in length, closely coiled and so arranged that either the whole or different lengths of it may be switched into the circuit as desired. In this way the strength of the current may be adjusted to the smallest and most delicate instruments.

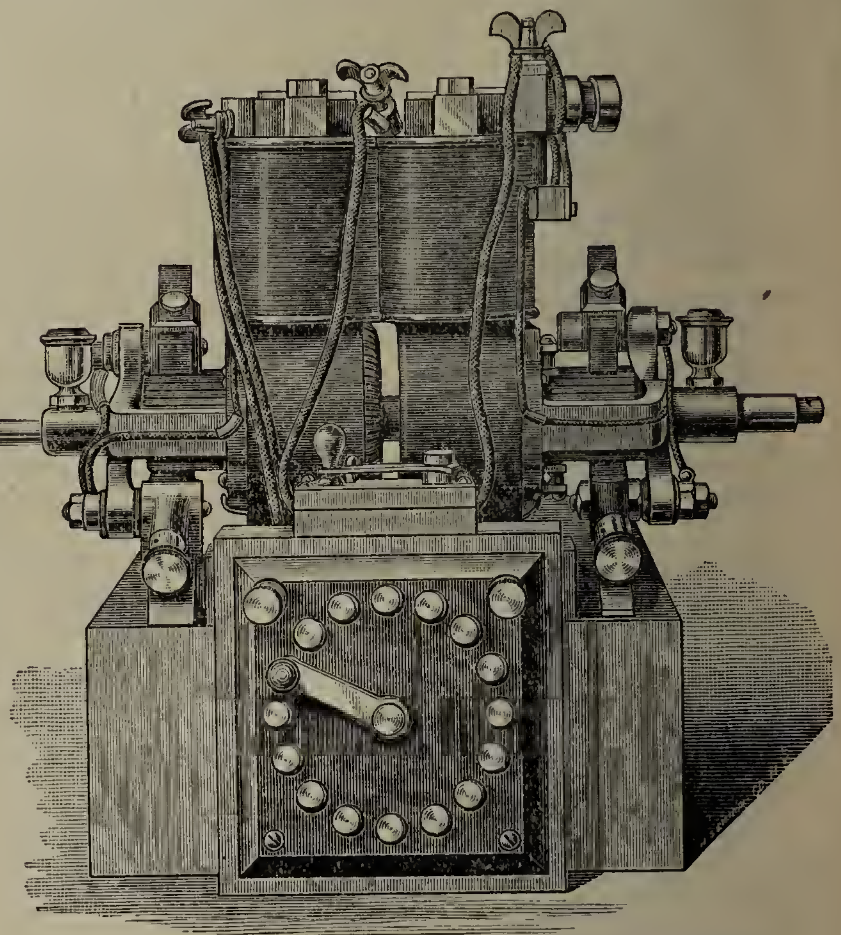

FIG. 3.—The author's apparatus for mechanical and caustic operations.

4. To the end of the shaft which protrudes beyond the dynamo a fan may be fitted, which is a great promoter of comfort during the dog-days. When the fan is brought into use the electrical connection between the motor and dynamo is broken and the shaft revolves without the generation of any electricity by the dynamo.

5. The speed at which the fan revolves is readily regulated by taking out the plug which closes the circuit in the lamp socket (not shown in the cut) and inserting an incandescent lamp in its place; the lower the candle-power of the lamp the slower the fan revolves. Thus a 16-candle-power lamp will produce a gentle zephyr, a 32 or 50 will give a stronger breeze, while if the plug is left in place a small cyclone will result. The lamps introduce a certain amount of resistance in the circuit, and by thus cutting down the power of the current cause the shaft of the motor to revolve more slowly.

6. This method of regulating the speed, however, will not answer when we desire to use the motor for mechanical work, such as the running of burrs, saws, or other cutting instruments. In sawing bone we should use a lower speed than when dividing soft tissues, but we can not afford to lose any of the power ($\frac{1}{8}$ horse-power). The normal speed of the motor is 2,200 revolutions a minute, but by means of gears we can reduce this to one half or one quarter without appreciable loss of power.

By means of a pulley band the motor may be used in connection with a Holtz machine for the generation of electro-static electricity, which in turn may be used as a source of electricity for the generation of ozone.

During the past seventeen or eighteen years I have experimented with almost every form of ozone generator, with a view to finding an efficient and convenient means of obtaining this form of active oxygen for use in the sick-room and for other purposes. The difficulties in the way have until recently been, first, the lack of a convenient way of obtaining the primary electric current; and, secondly, the difficulty of finding a good ozone generator.

Single fluid batteries would polarize too quickly and the current would stop. Cells of the Leclanché type would be permanently ruined if devoted for half an hour to this service. Blue-vitriol batteries could be used, but it would take a ten-acre lot, more or less, to hold enough of them for the purpose. The only primary batteries that can be practically used as generators of electricity in this connection are Grove's and Bunsen's, with which I have experimented a good deal in the past. The inconveniences attending their use, however, are well known to all who have had much to do with them. The storage battery fills the gap and answers the purpose admirably. But this in turn must be well fed and well groomed if it is to be called on to do much work, or half the time it will go lame when most wanted for service. I am now able to overcome this difficulty by the use of my small dynamo, the current from which is passed through a Ruhmkorff coil, and the induced electricity from this latter through the ozone machine. The best ozone generator that I have thus far met with is that of Siemens, which may be obtained from the Ozone Company of this city.

The adapter, motor-dynamo, and other devices which I have described as original with myself, may be obtained from the W. F. Ford Surgical Instrument Company, of 315 Fifth Avenue, New York, who have pledged themselves to construct them in accordance with my directions, and not to vary from them to the detriment of their quality.

ADJUSTED LOCOMOTION IN THE TREATMENT OF THE RECOVERING STAGE OF HIP-JOINT DISEASE.*

By HENRY LING TAYLOR, M. D.

The tendency of inflammations of the hip joint, whether tubercular or non-tubercular, is toward recovery if conditions favorable to local protection and general nutrition are sufficiently provided. The rubbing and compression of the swollen and congested tissues from muscular spasm and external violence may be prevented by mechanical counter-extension with short periods of recumbency—which relieves undue pressure and sufficiently immobilizes the joint. Traction, unless applied in the line of the deformity produced by spasmodic muscular action, will exert leverage upon the sensitive joint, increasing intra-articular pressure and inflicting additional injury.

A recent case illustrates the prompt relief afforded by properly adjusted counter-traction, where its imperfect application had failed.

The case was that of a boy who had had lameness and moderate symptoms suggestive of hip disease for at least a year and a half. The invasion, as is so often the case, had been painless and gradual, and eight months had elapsed before the diagnosis was made. He was then furnished with a short traction splint, crutches, and a high sole. He seemed to do well until last October, when he had a fall; he was brought to me in his father's arms, February 16, 1891, still wearing his short splint. His father stated that the boy had been unable to walk for a month, and that during that time he had been kept in the recumbent position with the splint and four-pound weight attached to the leg. He had been growing steadily worse, had lost appetite and flesh, and latterly had moaned and cried out every night. His right hip was so sensitive that he could scarcely bear to be moved or even approached. Examination showed a tender hip joint, rigidly held by muscular spasm in the flexed position. There was some swelling at the anterior and upper portion of the right thigh, and when the limb was moved the adductors stood out like whip-cords. The little fellow, though a thoroughly well-trained child, was in an agony of apprehension over the gentlest manipulation. While deciding what course to pursue, the father took the child away and put him to bed as before with splint and weight, placing, at my suggestion, a pillow under the leg. Five days later he brought him back to place him under my care. He reported that the boy had cried out every night in the mean time, though he had not complained of pain, and examination showed that the flexion had increased to about 45°, and that the leg was considerably adducted. The boy was immediately put to bed, and the long traction splint with the long five-tailed plasters were applied to the leg, which rested in a sling, at an angle of 45°; the same weight was attached in such a manner as to pull in a line with the suspended leg. The night cries ceased at once and for good, and the boy was immediately relieved of all discomfort. Within a week, without employing other treatment, his appetite had improved, his face lost its anxious expression, and he had already gained flesh; muscular spasm had much diminished, flexion was reduced one half, and the leg was strongly abducted. The child made no objection to the necessary handling, which evidently caused him no discomfort.

This is a fair sample of the immediate and direct effects following the precise application of mechanical counter-traction * to meet definite indications in the progressive and destructive stage of hip disease. If persisted in until the affected muscles are well relaxed and progressively modified to meet the changing indications, congestion and inflammation usually subside, joint nutrition improves, and the healing process is inaugurated. These facts are well known to American orthopædists, and should be generally appreciated; but the later stages of these cases, in their progress toward cure, present just as definite, though different, indications, which often tax the patience and ingenuity of the surgeon to the utmost.

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* Read before the Section in Orthopædic Surgery of the New York Academy of Medicine, March 20, 1891.

* Simple traction by means of a weight and pulley, even when supplemented by recumbency and attempted positive fixation, does not give the same result, as already pointed out in a paper entitled The Rational Treatment of Hip-joint Disease, read by title at the meeting of the American Orthopædic Association, Boston, September, 1889, and printed in the *Transactions*, and in the *Times and Register*, Philadelphia, April 26, 1890; and for the knee, in a paper on A Ready Method for Counter-extension at the Knee, read at the last meeting in Philadelphia and reprinted in the *Boston Medical and Surgical Journal*, October 16, 1890.

After the urgent symptoms have subsided and the stage of repair has set in * there ensues a prolonged period during which the healing or recently healed tissues are delicate and vulnerable, and poorly able to endure the shock and strain of unaided locomotion. The joint is free from disease, or in the process of freeing itself from disease, but is weak. The frequent surgical practice at this stage, if I mistake not, has been to allow the patient to be guided by his sensations or inclinations in his attempts at locomotion. In the absence of striking symptoms he may even be encouraged to walk without aid, in spite of distress or disability, especially if no immediately unfavorable result is apparent. In other words, the patient is formally or practically discharged while still in need of surgical aid. Is it not fair to attribute the unsatisfactory ultimate results so frequently observed largely to this neglect of efficient treatment in the later stages? At any rate, we frequently see, after ordinary surgical treatment is discontinued, progressive diminution of motion at the joint, slow but considerable absorption of articular bone, discharging sinuses, disabling and increasing deformity, and not seldom relapses with rekindling of the old inflammation. It is common for patients who have recovered under this plan to have abscesses recur about the joint or in the track of old sinuses, sometimes repeatedly, or after many years, and this may happen when no motion can be detected in the joint. It is reasonable to suppose that there is a considerable period between the time when the joint requires absolute rest and protection, and the time when it can be safely exposed to the traumatism of unrestricted locomotion, which presents its own peculiar indications for treatment. What measures should be employed in this later stage, and how long should they be continued? The practice among those who realize the dangers of premature attempts at unaided locomotion has usually been to continue the use of some form of extension or fixative splint, or crutches and a high shoe for a considerable time, until the vulnerable period is supposed to be past. But this plan, while undoubtedly better than the first mentioned, does not seem to fully meet the indications, for the prolonged restraint, instead of preparing the joint for the resumption of its functional activity, hinders the reparative process after it has reached a certain point, and, when the weight of the body is finally put upon the joint, the brunt of the strain comes upon delicate, poorly organized, and unresponsive tissues.

These were some of the considerations which led Dr. C. Fayette Taylor, some twenty years ago, to conceive and adopt the plan of treating his cases in the recovering stage of hip disease by locomotion adjusted to their needs. He made the patients walk without allowing the weight of the body to rest upon the joint, though the muscles were freely used and joint motion was not restrained. Whereas, in the stage of active and progressive inflammation, the patient had been either kept from walking or carefully limited, in order that rest in and about the joint should be as complete as possible, in the recovering stage he enabled his patients to walk by the use of the contrivance soon to be described, usually without other aid, in the conviction that the protected use of the joint and of the parts in the functional relation to it was of the greatest aid in equalizing the circulation of the parts, promoting local nutrition, and stimulating the processes of repair to greater energy and perfection. In the first stage walking was permitted, if at all, that it might do the patient good in a general way and without injury to the joint guarded by counter-extension; in the later stages a specially adjusted walking was itself employed as the treatment for the local condition, aside from its indirect and general good effects.

The jointed supporting splint—often known as the "Dows" splint, from the name of the patient for whom it was first used—has a free joint at the knee and ankle, and takes the weight of the body at each step upon a perineal strap. An early form of this apparatus is shown on page 56 (Fig. 15) of Dr. Taylor's monograph *On the Mechanical Treatment of Disease of the Hip Joint*, published * in 1873. The form used for the last fifteen years is shown in the cut (Fig. 1). The apparatus is made slightly longer than the leg, so that there is about three fourths of an inch space between the heel of the foot and the steel foot-piece, which is riveted into an ordinary shoe (Fig. 2). When the patient walks, his weight is transmitted by a perineal strap through the splint to the foot-piece and ground, his leg being suspended free of the shoe at the heel at every part of the step. The apparatus is connected with the foot-piece

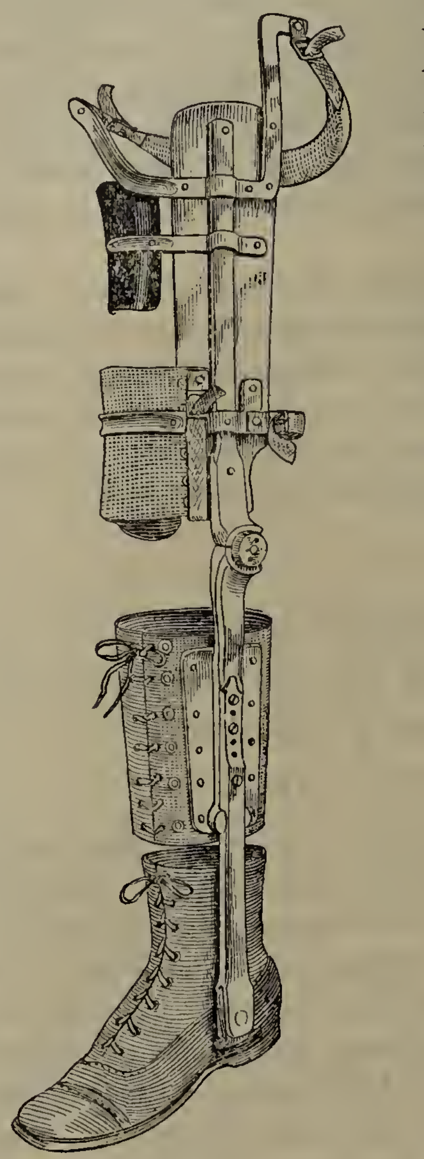
FIG. 1.

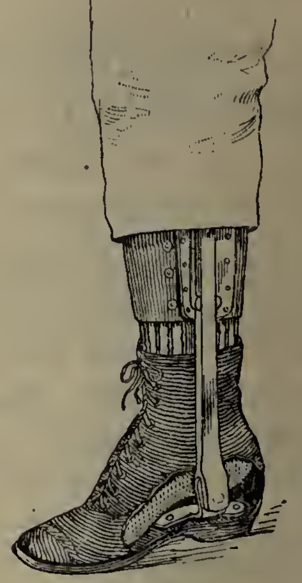
FIG. 2.

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* It is common in chronic osteitis of the hip, knee, and spine for the disease to advance by fits and starts, intervals of latency alternating with exacerbations, and such latent periods should be carefully distinguished from a definitive healing process, which can usually be done by critical examination of the condition of muscular tonicity about the suspected joint.

* William Wood & Co., New York, 1873.

by a slip-joint, so that the shoe can be removed without disturbing the brace. The weight of the apparatus is taken by a three-tailed or five-tailed adhesive plaster (Fig. 3) applied to the thigh, which also acts as a mild counter-extending force. As to construction, the apparatus must be, first of all, sufficiently rigid to take the weight of the body without yielding, as it is of the utmost importance that there should be such instinctive confidence in its solidity that the muscles should never be solicited to "stand guard." The best of materials and workmanship should be employed, so that there may be no lost motion and no unnecessary weight, and the apparatus must be fitted with exactness to each individual patient. In order to obtain stiffness with economy of material, the knee joint is often strengthened by a truss construction for heavy patients (Fig. 4). It is, nevertheless, perfectly feasible to carry out the same principles with an apparatus of comparatively simple and inexpensive construction (Fig. 5). By means of this appliance the patient is enabled to go through the motions of walking without subjecting the joint to weight or concussion, and freely enjoys the benefit of moderate exercise while stimulating the reparative processes and training the neuromuscular apparatus concerned, to its normal or best attainable development and use. In the progressive stage of inflammation the joint was put to rest and, as far as possible, deprived of intrinsic and extrinsic stimuli by a positive stretching of the muscles until they relaxed; the muscles were, so to speak, paralyzed for the time and atrophy was encouraged. When, after the restoration of physiological conditions, repair has set in, the joint is allowed to resume its functions little by little, and led back to its usual activity in a systematic and orderly manner. Motion without pressure is first permitted by walking on the jointed supporting splint; afterward, when the joint has fully recovered, the pressure is permitted by gradually allowing the patient's heel to come down upon the sole of the shoe as the side-bar of the apparatus is shortened or the perineal strap is slackened. It will be seen that this plan meets the requirements of the recovering stage by favoring better repair and by preparing the lately diseased or disused parts for the considerable strain that is sure to come upon them on the resumption of full functional activity. It is often advisable that this protecting and developing process should be continued for several years, during which the patient may often be permitted to go about quite freely and attend school or engage in his ordinary occupations, while the apparatus gives him no inconvenience and, being worn under his ordinary clothing, is scarcely noticeable. Mechanically-adjusted locomotion is so little irksome that the surgeon is made independent of time, and may continue it so long as the interests of the patient demand it. The object of the treatment is to restore the joint and limb to the best use attainable by providing favorable conditions for so long as may be necessary in order to secure the best ultimate and permanent result, and treatment is often prolonged, not because the patient is doing badly, but because he is doing well, and better repair and use are striven for than would be possible were the patient dismissed. Some of the best results have been secured

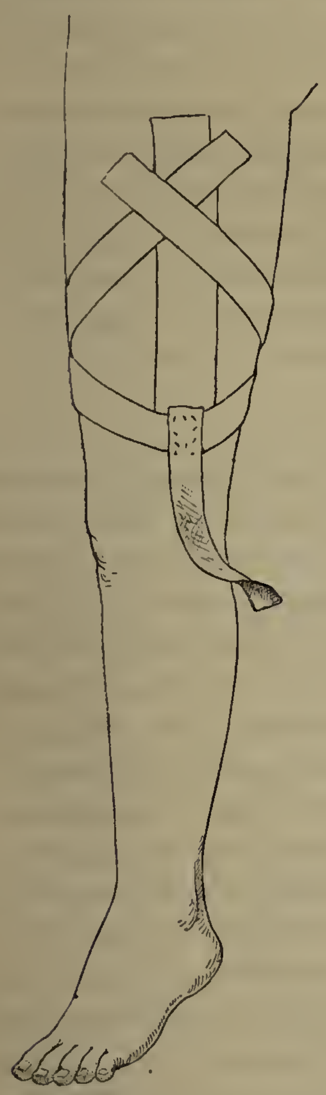
Fig. 3.

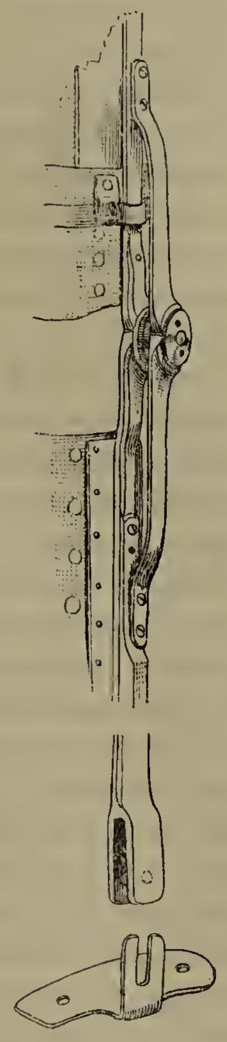
Fig. 4.

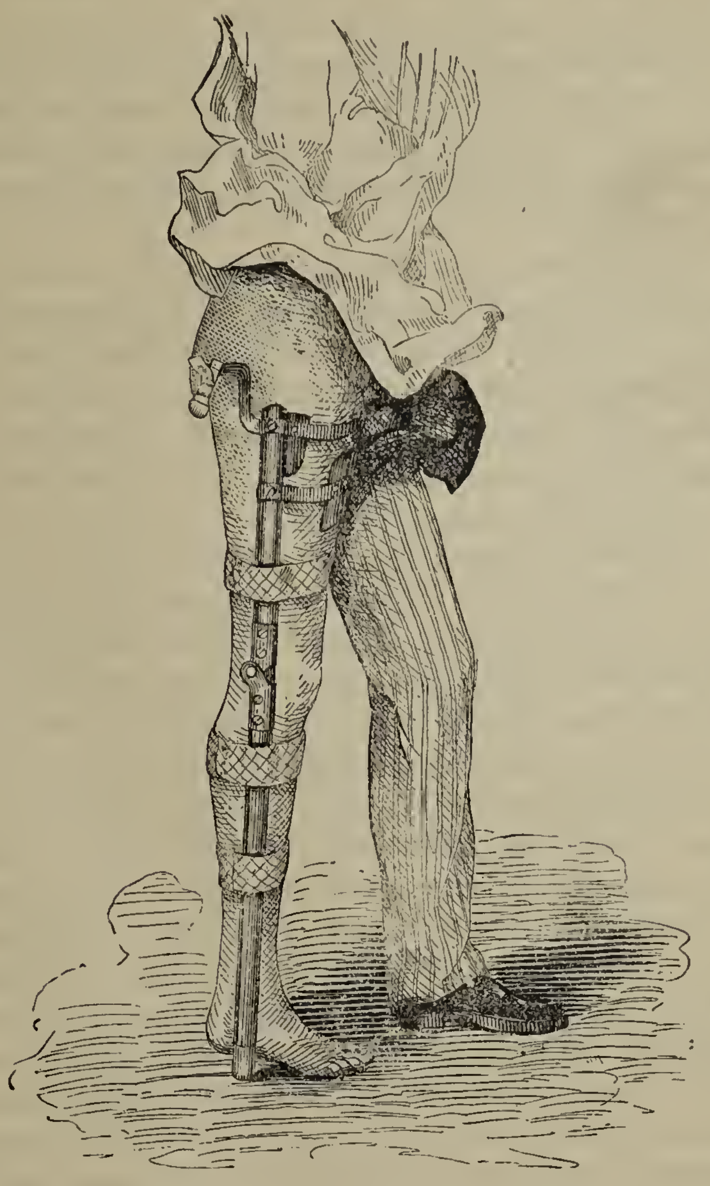
Fig. 5.

after the longest periods of treatment. I am satisfied that cases of hip disease are often left to shift for themselves much too early, and that deformity, disability, deterioration, and relapse are more frequent than they should be.

While the plan of encouraging repair and developing function under protected use is being carried out, special indications often arise which require other adjustments in the locomotor mechanism besides the elimination of weight and pressure.

In cases of long standing, especially when there has been considerable loss of articular bone, or limitation of motion, the muscles, from disuse or previous irritation, often lose their elasticity and become rigid, and the conditions are such as to favor a dynamical equilibrium in adduction, particularly when there is erosion of the head of the femur and luxation or subluxation at the joint.

I am not now speaking of the adduction from spasm in the acute stage, but of the adduction remaining after its subsidence or from some of the causes alluded to. This later adduction may be excessively persistent and difficult to handle, and I have already spoken of its mechanical treatment in a paper read before this Section two years ago.*

In these late and severe cases, after the adduction is overcome by quite rapid stretching in bed, the patient is allowed to walk about with an apparatus which holds the leg straight or slightly abducted under all circumstances. Motion inward is stopped by a perineal crutch bearing in the opposite groin, jointed to the knee-plate on the inner side of the apparatus, and arranged to limit or stop the inward motion of the thigh, and, if need be, take most of the pressure in walking on the groin opposite to the affected side, and so make the act of locomotion combat the abnormal tendency.

It is sometimes necessary to place and hold the leg in this fashion even after the perineal strap is dispensed with and the weight is allowed to come upon the joint. The various means used to accomplish this object have already been described † and the apparatus exhibited.

It may be necessary in a few cases to modify locomotion to meet the requirements of other distortions, such as abduction and rotation, by appropriate means. The point is to let the patient have the use, so soon as he is ready for it, of those elements of locomotion which are beneficial or can be made to be beneficial, and to eliminate deleterious elements. One kind of walking may be very harmful, another just as beneficial. A modification of our prescription or its dosage may determine an opposite result.

As the patient gains strength and dexterity he may be allowed to gradually resume in proper order the elements which have been withheld. Locomotion is thus seen to be susceptible of analysis for therapeutic purposes, and one or more of its elements may be prescribed and its dosage regulated, as in any other therapeutic measure.

In the most active stage of disease we not only abolish locomotion altogether, but add recumbency in the proper position to eliminate all demands upon the joint, and furnish positive counter-extension to protect the joint from spasm and undue pressure. Later we may allow locomotion with the well leg only, the patient being on crutches; still later, locomotion on a stiff counter-extending splint, which does not permit the foot to touch the ground. When morbid action is on the decline, we permit motion to the affected leg, but without pressure, using for this purpose the jointed supporting splint, with or without crutches or cane, according to the ability of the patient and the amount of exercise indicated. Later still we may modify locomotion so as to make it assist in counteracting certain deformities,* especially persistent adduction, and we may do this with or without perineal support on the affected side, according to the necessity of the case. And it must be remembered that locomotion in one plane is simpler than locomotion free from lateral restraint, so that the use of the abduction crutch, which practically means locomotion with free flexion and extension only, may be indicated in cases not yet ready for the simple "Dows," even if not much tendency to adduction is present.

The mechanical side of these problems has been sufficiently worked out by Dr. C. Fayette Taylor to enable us to give our patients just the kind of assistance in walking that they require, and his practice has always been to allow the patient to use the joint as much as can be done with safety, and to make that use of such a kind as to contribute to the development of the powers of the joint and its restoration to usefulness.

The subject of the therapeutic application of adjusted locomotion is a very broad one, which finds its practical application in most of the affections of the lower extremities with which the orthopædist has to deal; but the purpose of this paper is mainly to urge the importance of its scientific application to the amelioration of the conditions following the acute stages of hip disease. The method and apparatus are, however, applicable in disability at the hip joint from other causes, such as excision, ununited fracture, etc., and there is a fruitful field for the practical application of the principles involved. In the treatment of hip disease this plan has seemed to secure, wherever thoroughly and intelligently carried out, greater comfort and freedom of the patient during a large part of the treatment; frequently, I am convinced, less destruction of the joint structures, more motion, more perfect repair, better position, and a better ultimate use of the limb, and in some instances there has been improvement in amount of motion and usefulness, continuing for a considerable time after the discharge of the patient.

201 WEST FIFTY-FOURTH STREET.

Koch's Remedy.—"In the Upper House of the Prussian Diet," says the *British and Colonial Druggist*, "Count von Zedlitz, replying to a question regarding the efficacy of Dr. Koch's remedy, said its scientific value had already been established, and its therapeutic effect would be greatly enhanced as soon as Dr. Koch had succeeded in obtaining the pure cultivation of the principal substance in the remedy, a result which the Professor informed him would be achieved in a few weeks. The composition of the remedy would then be submitted to the examination of the scientific world."

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* The Prevention and Treatment of Crural Adduction. The *Medical News*, March 23, 1889.

† *Loc. cit.*

* Much as in the treatment of club-foot, after correction has passed a certain point, the weight of the body in locomotion assists correction.

THE REMARKABLE EFFECTS OF DIURETIN IN REMOVING DROPSY.

WITH REPORT OF CASES.

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It would seem as if any remedy that stimulated the renal epithelium might be regarded as a specific against dropsy. But there can be no infallible diuretic drug, since in some cases of general œdema the epithelium—*i. e.*, the secreting structure itself—is at fault. The alkaloids caffeine and theobromine are diuretics of great power; but the former has the drawback of primarily increasing arterial tension by its stimulation of the vaso-motor centers, and thus may even diminish the urinary secretion in cases in which the intravascular blood-pressure is already too high. In large doses, however, this action upon the nervous system becomes subordinated to its influence upon the kidneys, and free diuresis is effected. Still, an objection to large doses of caffeine, say five to ten grains three or four times a day, lies in the nervousness and insomnia of which patients are apt to complain. Moreover, the system becomes speedily accustomed to its effect, necessitating the employment of increasing doses. For this and other reasons Professor von Schroeder, of Strassburg, was led to experiment on animals with theobromine, and his results were reported at the Congress of Scientists, held in Heidelberg, September, 1889. He also had a paper on the subject in the *Therapeut. Monatshefte*, July, 1890. His conclusions were, that theobromine is a powerful stimulant of the renal epithelium, and that this action is not preceded or accompanied by any effect upon the nervous system, as in the case of caffeine. At his suggestion, a series of clinical investigations was undertaken by Dr. Christian Gram, in his hospital service at Copenhagen. They were reported in the *Therapeut. Monatshefte*, 1890, No. 1. Additional clinical studies were communicated by Dr. August Hoffmann to the Heidelberg Medical Society, on July 1, 1890. Recently, also, Dr. Koritschoner, of von Schrötter's clinic, at Vienna, has given the remedy a trial in thirty-eight cases of general dropsy. Twelve were due to renal disease, twenty were of cardiac origin, three from cirrhosis of the liver, two tuberculosis of lungs and serous membranes, and one from hepatic cancer. (See *Boston Medical and Surgical Journal*, October 30, 1890; also *Therapeutic Gazette*, December 15, 1890.) These observers are unanimous in praise of the remedy, and seem to regard it as without an equal. In the greater number of Gram's cases all other cardiac diuretics had been tried without avail, whereas the theobromine acted promptly and powerfully, except in a few instances, when it failed to be absorbed, or the renal epithelium was too greatly destroyed to respond to stimulation. Hoffmann's trials of it were confirmatory of Gram's.

The remedy acted promptly and energetically in all but five of Koritschoner's thirty-eight cases, and these were so far gone that death supervened a few hours after their admission to the hospital. Two cases of acute scarlatinal dropsy were benefitted in a most gratifying manner, thus showing theobromine to be free from irritating effect upon the kidneys.

There are two objections to the employment of the alkaloid itself—viz., its scarcity and consequent cost, and chiefly its almost absolute insolubility, even by the stomach. The latter difficulty was overcome by Dr. Gram, who found that, united with nearly an equal proportion of salicylate of sodium, it became readily soluble and easily absorbed. It is this salt—sodio-theobromine-salicylate—that has received the appellation of diuretin, and it is Knoll's preparation that is said to be the most reliable. Diuretin (Knoll) contains 48 per cent. of theobromine, while other preparations show only 30 to 38 per cent. of the alkaloid. The one in question has been introduced into this country by McKesson & Robbins, and is listed at about three dollars an ounce. That firm also sells five-grain pills of the drug.

The remedy is readily soluble in warm water, and had better be administered thus or in pill form, since if exposed to the air, as in powders, it undergoes change, from a setting free of the alkaloid, thus being rendered insoluble. As the daily dosage is large—from 4 to 8 grammes, 60 to 120 grains, in the twenty-four hours—I consider it best to give it in divided doses, and therefore order it in the strength of 15 grains to the ounce of warm water, and of this a tablespoonful is taken every three or four hours. Its taste, which one patient likened to a weak solution of soft soap, may be disguised by the addition of some aromatic oil. It is well borne by the stomach apparently, as none of my patients have complained of discomfort following large and frequent doses.

Case I.—Mr. B., aged sixty-two, manufacturer, corpulent, first consulted me January 27, 1890, for a troublesome intermittence of the heart's action. He considered his general health good, but, aside from disorder of the heart mentioned, there was small appetite and fermentative indigestion. Inquiry subsequently elicited the fact that for years he had been subject to attacks of pain beneath the *manubrium sterni* that were occasioned by the act of walking on days when the wind was easterly and raw. Without detailing the case, it will suffice to state that physical examination disclosed unmistakable signs of general arterio-sclerosis, with probable dilatation of the ascending aorta. Both aortic sounds were greatly accentuated and accompanied by a double, short, rough murmur, and the palm of the hand pressed over the aortic area distinguished a shock which at times assumed the character of a short thrill. The heart muscle appeared to be fairly sound. Analysis of the urine disclosed beginning degeneration of the kidneys; quantity, 1,200 c. c. Urea relatively and absolutely decreased; plain traces of albumin; quite abundant small and medium-sized hyaline casts.

Regulation of the diet and treatment directed to lessening arterial tension, and procuring gastro-intestinal antisepsis, gradually improved his condition, although the heart's intermittency was never quite lost. However, he at length ceased to consult me until the 1st of March last. His reappearance boded no good, and accordingly I found his heart's action weak and arrhythmic, and œdema had assailed his lower extremities. There was anorexia, together with obstinate constipation. He was ordered to keep to the house, and measures were taken to regulate the heart and invigorate the function of the kidneys. But all to no purpose. Hydragogue cathartics, digitalis, and caffeine exerted absolutely no effect on the dropsy, although the influence of the heart tonics in increasing arterial tension was combated with nitroglycerin and nitrite of sodium. Œdema steadily advanced upward until, at the end of a week, it had involved the genitals and invaded the peritoneal cavity. The heart's action was very bad, and attacks of cardiac asthma were frequent and violent, while a hard cough, with scanty serous expectoration, increased the suffering. Determining to waste no more time upon trials of old-time diuretic measures, I ordered diuretin (Knoll) as a last resort. The remedy was begun Tuesday afternoon, March 10th, and ninety grains taken the first twenty-four hours, and subsequently one hundred and twenty grains a day for four days. The result was astonishing. From a pint and a half during the twenty-four hours immediately preceding, the urine increased to twelve pints the next twenty-four hours, and, under one hundred and twenty grains of diuretin, to fourteen pints the second day, and eight pints the third day. At my usual visit that afternoon (Friday), I found œdema had disappeared, excepting slight puffiness about the left internal malleolus. The following Monday there was not a trace even of ascites. All dyspnœa had vanished, and the cough was no longer troublesome. There was, however, perceptible enlargement of the liver from passive hyperæmia, and a week later the patient again resorted to diuretin for a couple of days, owing to a recurrence of slight ascites. At present he is about and in possession of far better health than for months prior to his illness. During the administration of the diuretin no other remedy was taken.

Although said not to exercise any direct effect upon the circulation of the pulse, it certainly in this and the following case manifested marked improvement, becoming of nearly a normal rate and perfectly regular for minutes together. This I was inclined to attribute to indirect influence through diminution of arterial tension consequent upon the rapidly lessening venous engorgement and hence improved circulation. And indeed such may be the case; but, as will be seen in Case II, the improvement in the rate and volume of the pulse seemed out of proportion to the diminution in the venous stasis. And if its congener, caffeine, enjoys the reputation of being a heart tonic and regulator, why may not theobromine possess like virtues?

CASE II.—Miss S., aged eighteen years, has been confined in bed for nine weeks with heart disease. First saw the patient on Tuesday, March 7th. Physical signs showed the case to be one of mitral disease, stenosis predominating. Heart's action rapid and irregular, and signs of venous stasis very marked. Œdema involved the feet and legs nearly to the knees, and the enormously enlarged liver from passive hyperæmia was giving the patient much suffering. The urine was that of renal congestion, and in quantity not much more than a pint in twenty-four hours. Besides sulphonal and chlorodyne *pro re nata*, ninety grains of diuretin were ordered in divided doses during the twenty-four hours, and continued for six days. The effect upon the kidneys was marked, although nothing like that observed in the first and third cases. It was difficult to collect all the urine, owing to involuntary micturition at times, but the amount passed could not have been less than six pints in the twenty-four hours. By the end of the sixth day the œdema had practically disappeared. During the administration of the remedy the action of the heart became manifestly slower, stronger, and perfectly regular.

In this instance, I believe, the effect was not greater because of the interference with absorption produced by the portal obstruction; and so soon as the diuretin was discontinued the anasarca began to reappear.

CASE III is a hospital patient with chronic parenchymatous nephritis, who was generally anasarcous upon admission to the ward the last of March. He had become chilled and wet, which apparently had occasioned an exacerbation of an old, long-standing malady.

March 30th.—Urine was scanty, of high specific gravity, and contained a large amount of albumin, besides granular and hyaline casts. The anasarca increased greatly, and by April 3d he was passing only about a quart of urine in twenty-four hours, despite the free administration of all the diuretics at command in the hospital. At length elaterine was resorted to in frequently repeated doses of a tenth of a grain, and, with free purging, diuresis became established to the extent that on April 9th he passed seventy-three ounces of urine and the œdema began to lessen. However, as the diuretin ordered a week before had arrived and we desired to test its efficacy in this class of cases, the patient was, on April 10th, put on ninety grains in twenty-four hours, seven grains and a half being taken every two hours. The renal secretion arose at once to one hundred and forty-six ounces in twenty-four hours, and at the end of two days the patient begged to have the medicine discontinued. At the time of my rounds on Monday morning the œdema had vanished absolutely, and abundant diuresis was still maintained. In fact, the quantity of urine voided on the 14th—two days subsequent to the discontinuance of the medicine—is reported to have been one hundred and sixty-one ounces.

CASE IV.—A male patient, aged sixty-one years, was admitted to Ward 6, Cook County Hospital, March 18th last, suffering from recent pleurisy with moderate effusion of the left base. In addition there was general arterio-sclerosis, with moderate hypertrophy of the left ventricle and a passively hyperæmic liver. An enlarged spleen, firm, with rather thin borders, could be plainly felt. He was somewhat anæmic, and gave a history of several attacks of malaria during the past three years. His condition remained pretty much in *statu quo* until the 25th, when slight œdema of the feet and ankles was reported. The urine analysis on the 28th showed much albumin, but otherwise nothing abnormal. In spite of digitalis, the œdema increased somewhat, and by April 15th some ascites had made its appearance. Urine analysis at that date showed no albumin and no casts. I regret to say a quantitative analysis of urea was not made. But the case is probably one of general arterio-sclerosis, with cirrhotic kidneys.

April 16th.—Sixty grains of diuretin (Knoll) were ordered for the patient during the ensuing twenty-four hours. But no apparent effect was produced, as he passed but thirty-three ounces of urine. The medicine was then increased to ninety grains, with like want of effect. It was not until the remedy was increased to one hundred and twenty grains daily that its characteristic action became manifest. This was done on April 19th, and in the ensuing twelve hours he voided thirty-one ounces.

With reference to Case II I should like to add that, since the foregoing report of her experience with diuretin was penned, I have been obliged to order it for her again, and the effect upon her pulse and general condition is wonderful. Two days ago the radial pulse was extremely weak and arrhythmic, the integument over the sacral region was œdematous, her abdomen greatly distended with ascites and tympanites, producing constant pain, and every half-hour or so she would pass into a state of unconsciousness and rigidity, the pulse becoming almost imperceptible at the wrist. This morning the pulse was fairly full and regular, she had passed a tolerably comfortable night, the œdema of the back had disappeared, and she was free from pain. In short, she had passed from a state of great discomfort to one of comparative ease.

Conclusions.—1. Diuretin (Knoll) is a diuretic of great power and promptitude, suitable to all forms of dropsy.

2. Not increasing arterial tension, it is likely to succeed where digitalis, caffeine, and their congeners fail.

3. In cases of cardiac dropsy, with great feebleness of the pulse and arrhythmia, it will strengthen and regulate, rather than depress, the heart's action.

4. It appears to cause no irritation of the stomach or kidneys.

5. It requires to be given to the extent of from ninety to one hundred and twenty grains daily, and preferably in small doses frequently repeated.

6. It is best administered either in solution in warm water or in gelatin-coated pills, since, if exposed to the air in powders, it undergoes change, with a precipitation of much of the insoluble theobromine.

240 Wabash Avenue.

SOME MEDICO-LEGAL POINTS IN THE "FRENCHY" MURDER TRIAL.

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In this short article I shall give only certain points in the medico-legal history of the trial, with the development of which I was specially connected. A complete history of the trial will undoubtedly be published eventually at the proper time and in the usual way; and it is probable that Dr. Edson and Dr. Formad, with whom I was associated in behalf of the people, will give some account of their own individual connection with the case. The trial was certainly remarkable, not only on account of certain novel medico-legal points, but from the extraordinary nature of the crime, the unusual character of the criminal, certain points of similarity to the murders committed by "Jack, the Ripper," and the possibility—very remote, it is true—that the murderer may be "Jack, the Ripper," himself. It is not pretended that the short history which I shall give of the crime will be exactly accurate, as the details are not taken from official records; but the account is substantially correct and sufficiently minute for the purposes of this article.

The prisoner was indicted under the name of George Frank. He was known also as "Frenchy." His real name was said to be Ameer Ben Ali. He was born in Beni Aisha, a village in the valley between Algiers and Belida. He said that he did not know his age, but he appeared to be between thirty and forty. He was said to have served in the French army in a regiment of Turkos for eight years. He could not be made to state exactly when he came to this country or to the city of New York.

Shortly after midnight on the night of April 23d–24th Carrie Brown, known as "Shakespeare," an abandoned woman of dissolute and intemperate habits, fifty-five years of age, came to a low resort known as the East River Hotel, in the city of New York, and went to Room No. 31 with a man who was not the prisoner. This man disappeared during the night and has not been found up to the present time. In the hotel are several rooms on either side of a hall.

The prisoner came to the hotel alone about 1 A. M. of the same night. He went with a candle to Room 33, across the hall from Room 31. About 5 A. M. on April 24th the prisoner was seen to leave the hotel. About 10 A. M. April 24th the body of the murdered woman was found on the bed in Room 31. A small red shawl and a petticoat, both blood-stained, were wound around the head. The lower part of the abdomen was slashed open and several inches of the lower part of the ileum were cut out completely and left in or near the body. Other parts of the ileum were cut open and one ovary was pulled out. The stomach and large intestine were not injured. An ordinary case-knife, broken and sharpened to a point and stained with blood, was found near the body. The bed-ticking under the body was soaked with blood. Three or four spots of blood were found in the hall between Room 31 and Room 33. A spot of blood as large as a dollar was found on the bed and a spot of about the same size on a wooden chair in Room 33. Bloody finger-marks were found by the side of the door of Room 33 and on the wall near the door.

It was in evidence that the murdered woman had said to a female acquaintance on the afternoon of April 23d that she had eaten nothing for several days. On that afternoon she took a glass of beer and a cheese sandwich and some corned beef, raw cabbage, and pickle from a "free-lunch" counter.

It was in evidence that the prisoner had been in the habit of going to the hotel with women, and had frequently left his room, tried the doors of other rooms, and sometimes had gone into other rooms and remained a while.

Dr. W. T. Jenkins, deputy coroner, testified that the murdered woman had died of strangulation. He also testified to the condition of the abdomen and its contents, which has already been described.

The prisoner was arrested the night after the murder. His shirt and both socks were stained with blood. The largest stain on the shirt was on the front flap. There were smaller stains on the right sleeve, the left sleeve, and the back. Four days after the arrest matters were taken from beneath the finger-nails of the prisoner. The nails were unusually long.

In general terms, the theory of the prosecution was that the prisoner had taken Room 33 for the purpose of entering other rooms during the night and gratifying his passions with women whom he might find alone; that he had entered Room 31 at some time during the night, and had found Carrie Brown after her male companion had left her; that in some way he had become enraged at the woman, had taken her by the throat and strangled her; that the mutilation, etc., were evidences of a certain ferocity of temperament not to be wondered at in a person of his character and previous record; and that after having murdered the woman he had returned to Room 33, and had left the hotel as soon as practicable, without attracting particular attention, in the morning. The prosecution maintained that the blood-stains nearly all contained, mixed with the blood, contents of the lower part of the ileum.

The theory of the defense was that the woman was killed by the man who went with her to Room 31 and disappeared during the night; that it could not be shown that the stains on the prisoner's person and clothing were blood mixed with the contents of the small intestine; and that the blood on the prisoner's shirt was from a woman with whom the prisoner had had connection the night before the murder during her menstrual period.

The trial began on June 29th and a verdict of guilty of murder in the second degree was rendered on the evening of July 3, 1891.

The verdict was reached on circumstantial evidence alone. Stripping the case of all minor considerations and circumstances which may have influenced some of the jurors more or less, the evidence which convicted the prisoner was that the various specimens examined by the experts for the people presented blood mixed with matters which must have come from the small intestine, and which, by no reasonable theory, could be on the prisoner's clothing and person unless they came from the body of the murdered woman. It is this point in the case which, as far as I know, is without precedent, and is of peculiar medico-legal interest and importance.

Dr. Cyrus Edson made some examinations of the specimens and testified before the coroner's jury. On June 20, 1891, Dr. Henry F. Formad, of the University of Pennsylvania, was associated with Dr. Edson in the investigations. On June 26th I was associated with Dr. Edson and Dr. Formad.

I found, on June 26th, that Dr. Edson and Dr. Formad had made microscopical preparations as follows: *a*, matters taken from beneath the free edges of the finger-nails of the prisoner; *b*, from the front flap of the shirt; *c*, from the right sleeve of the shirt; *d*, from the back of the shirt; *e*, from the left sleeve of the shirt; *f*, from another piece of the left sleeve of the shirt; *g*, from the wall-paper on the hall near the door of Room 33; *h*, from wood taken from the outside of the door of Room 33; *i*, from the floor of Room 33; *j*, from the socks of the prisoner; *k*, from the door-casing of Room 33; *l*, from the wooden chair in Room 33; *m*, from the floor of the hall between Room 31 and Room 33; *n*, from the bed-ticking in Room 33; *o*, from the knife found in Room 31; *p*, from the door of Room 33; *q*, from the bed-ticking under the murdered woman in Room 31; *r*, from the stockings of the murdered woman; *s*, from the petticoat tied around the head of the murdered woman; *t*, from the sheet on the bed in Room 31.

In all of these specimens mammalian blood was found, presumably human blood.

In *d*, *e*, *f*, *m*, *n*, *r*, and *s*—viz., back of prisoner's shirt, left sleeve of shirt, the second piece of left sleeve, floor of hall, bed-ticking from Room 33, stocking of murdered woman, petticoat tied around the head of the murdered woman—nothing but blood was found. In all the other specimens—viz., matters under prisoner's nails, front flap and right sleeve of shirt, wall-paper from hall, wood from door, casing of door, chair, socks of prisoner, knife found in Room 31, bed-ticking and sheet from Room 31—blood was found with more or less admixture of the following: 1, biliary coloring matter unchanged; 2, fat globules and crystals; 3, tyrosine; 4, cholesterin; 5, triple phosphates; 6, columnar epithelium; 7, eggs of round worms; 8, starch granules; 9, partially digested muscular tissue, with a few fibers perfect, and partially digested vegetable matters; 10, "molecular detritus."

Dr. Formad testified to the appearances as stated above, and his testimony was confirmed by Dr. Edson. I examined certain of the specimens, to be enumerated hereafter, with special care, and confirmed the testimony of Dr. Formad.

With this introduction, I shall now describe my own observations and conclusions in this remarkable case:

On June 26th I was invited to join Dr. Edson and Dr. Formad, and made with them an examination of the specimens. The specimens that I examined with special care were those from the bed-ticking from under the murdered woman, the matters from the finger-nails, from the front flap and right sleeve of the prisoner's shirt, and from the prisoner's socks. In all of these specimens I discovered essentially what was observed by Dr. Edson and Dr. Formad. In addition to the blood, the matters that were particularly prominent were sheaves of crystals of tyrosine, columnar epithelium brightly colored with bile, partially digested muscular tissue and a very few muscular fibers nearly perfect in their structure, with the hard residue of spiral and other vegetable cells. In addition, I observed a number of micro-organisms such as are found both in the large and the small intestine. On inquiring with regard to the part of the intestinal tract that had been opened, I was informed that it was the large intestine; but the records of the post-mortem examination were not in the hands of my associates. Notwithstanding this statement and general impression that the specimens represented blood mixed with fæces, I formed and expressed to Dr. Edson and Dr. Formad the decided opinion that the blood was mixed with the contents of the lower part of the ileum. My grounds for this opinion were the presence of tyrosine and bilirubin, which do not exist in the normal fæces, and incidentally the presence of a few very slightly altered muscular fibers, such as probably would not be found in the large intestine. After re-examination of the specimens and consultation, we all agreed that the matters mixed with the blood came from the small intestine; and a record of the autopsy, received later, showed that a portion of the lower part of the ileum had been cut out, the large intestine being uninjured. I emphasize this point for the reason that the case actually turned upon the distinction between the contents of the ileum and the fæces. Whatever credit may be attached to the originating of this theory must carry with it a very large share of the responsibility of the conviction of the prisoner; for it was the general opinion, at least of those connected with the prosecution, that this was the fatal point against the prisoner, as fæces, especially in persons of filthy habits, might have been derived from sources other than those alleged by the people.

On the witness-stand I testified substantially to the following facts and conclusions :

1. That the specimens examined by me contained tyrosine, bilirubin, columnar epithelum, partially digested muscular tissue and vegetable substances, micro-organisms, etc.

2. That the tyrosine and bilirubin must have come from the small intestine, while the other substances might exist in the large intestine.

3. That the tyrosine was due to the prolonged action of the pancreatic juice upon albuminoids, these matters being first converted into trypsine-peptones and afterward into tyrosine, the change into tyrosine being aided by the action of intestinal micro-organisms.

4. That the bilirubin, which strongly colored the epithelial cells and the molecular matters, was characteristic of the contents of the small intestine.

5. That the appearances were practically the same in all the specimens.

My opinion that the matters were from the small intestine was based mainly on the presence of tyrosine and bilirubin.

I further testified that, after matters passed from the small into the large intestine, tyrosine ($C_9H_{11}NO_3$) was changed into indol (C_8H_7N), and that bilirubin ($C_{32}H_{36}N_4O_8$) was changed into hydrobilirubin or stercobilin ($C_{32}H_{40}N_4O_7$) and became of a brown color; that the recognized matters peculiar to the fæces were indol, skatol (to which the peculiar odorous matters adhere), phenol, stercorin, excretine, and excretoleic acid.

Judging from the verdict, the jury believed that the blood was mixed with the contents of the small intestine and not with fæces, and that the matters found on the prisoner's person and clothing were identical with those found on the ticking of the bed on which the murdered woman lay.

While under examination on the witness-stand I could, of course, do nothing more than give answers to the questions asked. Here, however, I can enter into some discussion of the opinions expressed by me.

The changes which result in the formation of tyrosine in the small intestine, and its further change in the large intestine, are well recognized by all physiologists. Tyrosine is found in health in other parts, such as the substance of the spleen, pancreas, and liver. In certain diseased conditions it is found also in other situations. In perfectly healthy digestion, tyrosine is by no means constant in the small intestine, but it is very seldom found in the fæces, and then only in some kinds of diarrhœa and in cholera.

Bilirubin (the unchanged coloring matter of the bile) is always found in the small intestine, if bile be discharged into the duodenum. It does not exist in the fæces, and the stercobilin, which is brown in color, will not respond to the ordinary color tests for bilirubin. The exceptions are only in pathological conditions, especially when the fæces are of a green color.

Relying upon the presence of tyrosine and bilirubin, taken in connection with the fact that the small intestine was cut and the large intestine was uninjured, and that there was no part injured that could have furnished tyrosine, the conclusion to my mind was inevitable that the matters mixed with the blood, in the specimens which I examined, were practically identical and that they came from the ileum.

FUNCTIONAL HEADACHE FROM EYE-STRAIN IN CHILDREN.*

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When I was honored with a request on the part of the Section in Pædiatrics to prepare a paper for this meeting on functional headache as one of the symptoms of eye-strain in children, with the view of emphasizing the importance of attention to the causes of this condition, I felt that your invitation would acquit me of a disposition to undue assumption, of which I might under other circumstances be convicted for coming before you with a contribution which could lay no claim to novelty. Thus, Mr. Chairman, I cast upon you the responsibility for my appearance and my topic.

It would have been difficult to select a question in the whole range of ophthalmology more important than that of how to deal with errors of refraction, for this is, after all, the real basis of the question which it is my privilege to discuss this evening, in connection with the symptoms of eye-strain.

In attempting to use the eyes at near work, as in reading, writing, sewing, etc., a complex of symptoms may arise, which we designate by the name asthenopia or eye-strain. These names do not convey to the mind a definite idea of the condition which they are intended to represent; they simply serve the purpose of convenience. The symptoms in question are variously described as consisting of irritation of the mucous membrane of the lids, of photophobia, and pain in the eyes and in the head. The headache may be frontal, in the temples, or in both situations, and radiate to the occiput and be accompanied by a sense of pressure in and about the eyes; further, the letters of the book may become indistinct after a time, and if near work be persisted in the letters may be seen double. The factors which occasion this condition are said to be the accommodation and the muscles which move the eyeballs, but the primary cause of the condition in its relation to the eyes is faulty refraction.

It is to the great work of Donders that we are most indebted for what we know of the cause and treatment of eye-strain. I shall not so far abuse the privileges accorded me by your invitation as to ask you to listen to a history of the views respecting the causes of eye-strain which were held before the publication of Donders's work in 1862. However interesting historically, you would hardly thank me for a history of errors. But a short reference to some prominent points in the early history of eye-strain can not be wholly unwelcome, as showing how much Donders helped us and how we have been still further assisted by following up his suggestions.

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* Read before the Section in Pædiatrics of the New York Academy of Medicine, May 14, 1891.

It has happened that a great genius has correctly interpreted a phenomenon without being able to furnish the necessary proofs to produce conviction. For instance, before Thomas Young's time, it was supposed that the accommodation of the eye was brought about by a lengthening of the axis of the eyeball. Young adduced reasons, which we now accept as proofs, for asserting that the power of accommodation depended upon a change of form in the lens. This was in 1793. Young died in 1829. It was not until 1840 that Brücke discovered the muscle of accommodation; then Young's demonstration was complete.

Before Donders's great work appeared upon the scene, the cause of asthenopia or eye-strain was generally sought in the retina or the chorioid. Tyrrel (1840) tried to prove that a preceding congestion of the chorioid was the primary cause of asthenopia; but Bonnet (1841) and Pétrequin (1842) placed the primary cause of eye-strain in the muscular organs of the eye, especially in those of the accommodation. This was soon after the discovery of the muscle of accommodation by Brücke in 1840. Bonnet and Pétrequin looked upon the external muscles of the eyeball as causing undue pressure, and thus occupied themselves with the idea of tenotomy, in order to cure the asthenopia. It was thought that the improvement of the power of vision by which the cutting of the muscles was attended was brought about by a change of refraction. But the operation did not change the refraction. The division of the internal rectus permitted a stronger tension of accommodation, with convergence of the visual lines to a certain point, just as is possible by means of a prism with its base directed outward.

Then came Böhm, who, on the supposition that he had to do with an anomaly of accommodation, recommended the use of convex glasses in asthenopia; but without clear ideas of myopia and hypermetropia, the glasses which he prescribed ($\frac{1}{80}$ to $\frac{1}{40}$) were too weak. In time a long train of causes was adduced from circumstances which accidentally coincided with the development of the phenomena of asthenopia. To some, asthenopia was a peculiar form of disease from which the embroiderers of Nancy were said to have particularly suffered; by others the same affection was found among the lace-makers of Brussels; and so particular callings were believed to develop the condition; so that, if the enfeebled power of the accommodation was believed to be the cause of the asthenopia, the treatment was directed against the cause of debility, and demanded, above all things, rest of accommodation by avoiding all work in which looking at near objects was necessary, and, where the latter could not be wholly dispensed with, it was thought that weak convex glasses would serve the same purpose, although, on account of the tension of accommodation connected with convergence, this plan would necessarily be less successful (Donders). Mackenzie, a distinguished figure in ophthalmology of those days, declared: "If the patient is a young lad, bound apprentice to a sedentary trade, and the disease, from its duration and its mode of origin, not likely to yield to treatment, we may advise him to turn shopkeeper or to apply himself to country work or to go to sea; if a female, occupied constantly in sewing, to engage in household affairs, or any other healthful, active employment. Many a poor man have I told to give up his sedentary trade and drive a horse and cart; while to those in better circumstances, and not far advanced in life, I have recommended emigration, telling them that though they never could employ their eyes advantageously where much reading or writing was required, they might see sufficiently to follow the pastoral pursuits of an Australian colonist."

Albrecht von Graefe (1855) assigned to asthenopia only a symptomatic significance. Thus he believed in the existence of muscular asthenopia proceeding from insufficiency of the internal recti muscles. Donders regarded insufficiency of the internal recti muscles as a morbid state whose symptoms have some *resemblance* to those of asthenopia, and it was in this sense of *resemblance* that he spoke of cases of asthenopia occurring in myopia and astigmatism. This was about the state of our knowledge of the cause of asthenopia when Donders discovered its cause in the hypermetropic structure of the eye, and, to use his own language, "the supposed anomaly of accommodation then became an anomaly of refraction, the connection of asthenopia with the circumstances under which fatigue is manifested was made most clear, the necessity of complete relief by spectacles was proved, while at the same time the hope of a radical cure of asthenopia was extinguished forever."

As this matter now stands, there is a divergence of opinion among oculists in regard to the existence or non-existence of muscular asthenopia. Roosa, for instance, believes that ametropia, not hypermetropia alone, but also astigmatism, are the chief factors in the causation of asthenopia, and that insufficiency of ocular muscles is usually, if not always, a consequence of these organic conditions. On the other hand, there is an array of distinguished ophthalmologists who attach great importance to the correction of muscular insufficiency and want of muscular equilibrium by means added to those of correction of the refractive errors. These remarks do not embrace the view advanced of late years by Dr. Stevens, which ascribes a class of affections of the nervous system—*i. e.*, chorea, epilepsy, etc.—to insufficiencies of the external ocular muscles, nor is a discussion of this view pertinent to the subject under consideration.

Donders, as has been said, discovered that true asthenopia was caused by an organic fixed condition of the eyeball, and that hypermetropia was the chief cause at the bottom of this condition. He regarded astigmatism as producing symptoms which resembled those of asthenopia, but Donders did not attach the same degree of importance to the correction of astigmatism in asthenopia that we do to-day. Nor did he find it necessary among his countrymen to correct the slight degrees of hypermetropia, and especially astigmatism, which we to-day find it essential to correct in order to relieve our patients from the symptoms of eye-strain.

It is for this reason that we differ to-day with Donders in his standard of an emmetropic or normal eye—*i. e.*, an eye with a small amount of error of refraction not exceeding $\frac{1}{40}$ of hyperopia.

Dr. B. A. Randall,* of Philadelphia, who brought together all the investigations up to the time (1888) of the refraction of the eyes of school-children and others, including his own studies, with the view to learn what was the prevailing refraction of the human eye, concluded that approximative emmetropia (Am. $< \pm 0{\cdot}5$) did not exceed 10 per cent., but I believe that even this small percentage is too great.

It has been said above that Donders proved asthenopia to be caused by hypermetropia.

We shall obtain a clearer idea of this relation by an examination of the facts deduced from the investigations undertaken with the view of determining the predominant refraction of the eye at different periods of life, based on which instructions have been formulated for the better hygiene of the eyes, especially during the school days.

Ed. v. Jäger (1861) found among 100 children between nine and sixteen days old 17 hypermetropes, 5 emmetropes, and 78 myopes. But v. Jäger did not employ atropine in these examinations, and no subsequent observer who has employed atropine in similar investigations has found so large a number of myopic eyes. The late Dr. E. T. Ely, of New York, found among 154 atropinized eyes of the new-born, from one to eight weeks old, myopia 27 times, emmetropia 21 times, and hypermetropia 106 times. Later, Ely examined 40 atropinized eyes of children from eight to twenty days old, and found among them 28 hyperopic, 8 emmetropic, and 4 myopic eyes. Schleich (1884) found among 150 children in the first eight days of life the constant condition to be hypermetropia, 100 per cent., averaging 4·4 D. Ulrich found the same among 102 infants from four hours to fourteen days. Jannick Bjerrum (under atropine) found in 87 children between seven hours and fourteen days, 44 eyes hypermetropic and 23 emmetropic. Königstein, examining without atropine, found in 281 new-born, 552 hypermetropic eyes, 10 emmetropic, but not a single myopic eye. Hortsmann examined under atropine the eyes of 150 children to determine the condition of refraction in human eyes during the first five years of life. The children belonged to the upper and middle ranks of life, as the occurrence of myopia is more frequently observed in these than in the lower classes of the population. Hortsmann divided his 150 cases into three groups of 50 each. The first group included 100 eyes of 50 new-born children—*i. e.*, from eight to thirty days old; 88 of these eyes were hypermetropic, 10 emmetropic, and 2 myopic, the average refraction being 2·4 D. In the second group of 50 children, from one to two years old, 84 eyes were hypermetropic, 10 emmetropic, 6 myopic. In this group, between the ages of one and two years, the effect of atropine was always satisfactory, whereas Hortsmann, like Ely and Konigstein, found that mydriasis *ad maximum* could not always be produced in the new-born, from which it was concluded that atropine did not always completely relax the accommodation at that age, and that the usual condition of refraction there is hypermetropia. In Hortsmann's second group of children, between the ages of one and two years, the first traces of developing myopia show themselves. The tendency to it would seem to be congenital. The third group contained 50 children of four to five years old, in which, consequently, the school life had not yet had any influence. The effect of atropine was complete in every case. In this third group 13 eyes were myopic, 10 emmetropic, and 74 hypermetropic. The conclusion from this and the other series of studies is that the eye of the new-born is, for the most part, hyperopic, and that in rare instances it is myopic, and that the myopia is probably lental. As life advances it has been claimed that the refraction steadily increases, that hypermetropia becomes less frequent, while emmetropia and myopia are more common. But here we come to a point in our inquiry in which opinions diverge.

Risley and Randall* examined 2,422 eyes with the view of determining the relations of normal vision, intra-ocular health, and functional comfort to the refraction.

It had already been shown that the hygienic surroundings of the pupils were not solely at fault—*i. e.*, that excellent arrangements did not in any appreciable degree lessen the percentage of increase of myopia. The studies of Risley and Randall were not alone intended to verify those of others, but to look for the causes for the increase of myopia beyond the mere hours of study and the sufficient lighting of the school-room. They therefore addressed themselves to the question as to the essential cause or causes of myopia, or the history of the ocular changes. Their studies agree with those of European observers in that there is a steady rise in the percentage of myopia, or near sight, as age advances—*i. e.*, the near sight commencing in the primary classes with a low percentage, and steadily increasing as the pupils pass to the highest grade in our public-school system—and that the myopic eye presents a higher percentage of disease than eyes with emmetropic or hypermetropic refraction; and that even in myopic eyes the percentage of disease is much higher when astigmatism is also present. Hypermetropia is, almost without exception, the condition of refraction of early infancy and early childhood, extending into the first years of school life with slight reduction in its proportion, and even in the higher schools it still predominates; nor is it proved that there is a significant decline in the grade of hypermetropia during school life, or that this condition of refraction is, under healthy physiological growth, thrown off in full manhood, and that eyes which were originally hypermetropic may, independently of pathological processes, develop into emmetropia, or even into myopia. This question remains disputable for the present.

Since my attention was first attracted to the question of the relations of intra-ocular pathological processes to refraction by Dr. Risley's report, I have observed a few cases of change of refraction in which I believe the underlying cause was a pathological condition.

The tendency to myopia is often congenital and shows itself sometimes already soon after the first year of life;

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* An Analysis of the Statistics of the Refraction of the Human Eye. Heidelberg Congress, 1888.

* Report on Weak Eyes in the Public Schools of Philadelphia. *Transactions of the Medical Society of the State of Pennsylvania, 1881.*

hence it is assumed that the highest degrees of myopia are recruited from these cases. Tscherning pointed out that these high degrees of myopia were not consequences of school life, but showed themselves previously, and are only increased by the school studies. The medium and low degrees of myopia, however, may be caused by the school studies, but, I believe, only under the conditions which I have already indicated. Risley concluded from his study that the emmetropic is the model eye, and that the probabilities are that no harm will come to it from the educational process. On the other hand, given an eye with an anomaly of refraction, especially astigmatism, the probabilities are, other things being equal, that the educational process will be fraught with pain and danger to the eye.

The foregoing remarks have a distinct bearing on the question of the relation of eye-strain to refraction.

Now, in looking at near objects, as in reading and writing, in a normal state, there should be an accurate adjustment of the eyes. In the effort to meet this requirement a certain demand is made upon the accommodation, which in turn is associated with contraction of the internal recti muscles. This demand will be proportionate to the state of refraction. Persons with near sight require less accommodation for this purpose than those with emmetropia, the hypermetrope making the greatest demand on his accommodation. These factors—the accommodation and the muscles which move the eyeballs—are presided over by several cerebral centers. The disturbance of one of these factors, so intimately associated, precipitates participation of all the factors. Faulty refraction will, according to its degree, impose upon the accommodation and external muscles of the globe a task which will be increased in proportion to the demands made by near work, and the development of the varied and distressing symptoms of eye-strain will receive an additional impetus from a feeble organization and a neurotic tendency; therefore we do not meet the requirements of all cases of eye-strain by giving suitable glasses, but we must also address ourselves to the improving of the general health.

The neurologist and ophthalmologist have for some time co-operated in the elucidation of the subject of headaches in general, and I do not know that I can better indicate the result than by citing the following passage from Dr. E. C. Seguin's article on Headache, in Keating's *Encyclopædia of the Diseases of Children* (vol. iv, p. 832, 1890):

> "The pathology of megrim to which we now incline (allowing due share to various exciting causes and to lithæmia) is that of eye-strain. The principal evidences in favor of this theory are: 1. The fact that almost all subjects of megrim have ocular defects, usually hypermetropia or hypermetropic astigmatism. 2. That hereditary transmission is frequent in these ocular defects as well as in megrim. 3. That megrim is apt to make its appearance at the age (from eight to twelve years) when children begin to use their eyes steadily for near work (study). 4. That in the period of life when accommodative power ceases, megrim also disappears. 5. That we now know from experience that the full correction (when possible) of ocular defects benefits more than all other therapeutic measures."

All the evidence which Seguin adduces is not strictly correct, but it shows the extent to which a distinguished neurologist has been impressed by the bearing of the ocular condition on headache. Seguin goes on to say (*ibid.*, page 834):

> "The recently advocated theory that megrim, as well as some other forms of headache, is due to ocular strain, has opened up a new and apparently more rational treatment of the disease. The ocular theory of megrim is supported by a remarkable series of facts, some of which have already been referred to. Another thing in its favor is that it is extremely rare to meet with normal eyes in victims of megrim; the great majority of subjects have hypermetropia, astigmatism, or the two combined; besides, in some cases, faulty muscular equilibrium. We are so deeply impressed with the importance of ocular strain as a prime factor in the genesis of megrim that we would strongly urge that in every case a thorough examination—*i. e.*, one made while the eyes are under the full influence of atropine—should be made of the refractive and muscular power of the eyes of patients suffering from megrim, and that too at the earliest possible age. Many adult cases are relieved or almost cured by correction of ocular defects, and we believe that if this treatment were applied more extensively to children, even before they begin to have headaches, much suffering might be spared, and many cases of so-called neurasthenia or nervous exhaustion, supposed to be due to over-study in children and youths, might be prevented."

I have purposely cited at this length the views of a well-known neurologist on the subject under consideration, because they reflect, in a great measure, the views of ophthalmologists in the same direction, and because they enable the ophthalmologist to escape from the criticism, so often made of specialists, that they are disposed to give their specialty undue prominence whenever they have the opportunity.

Since headache is a common condition in children, and errors of refraction constitute the rule in them as in all ages, I believe that the relation of the one condition to the other is not determined by bringing together statistics to show that the headache is always associated with refractive errors, because the latter are almost always present, and it would be the exception not to find them; but we should rather seek for the proportion of cases of headache in which correction of the ametropia affords relief. Such statistics have not been published. I can therefore simply state my belief, based on my own experience, and repeat the opinion expressed to me by a number of my colleagues who are oculists, that the majority of the school-children who apply to them for relief from headache are relieved by the correction of their ametropia. Headache from eye-strain does not alone appear in persons of poor health, with poor vision, and high degrees of ametropia. We find it often in persons in robust health, who read the smallest type on our distant test cards, and, although we are able to determine with the ophthalmoscope the presence of hypermetropia in such persons, they will not accept any glass until we uncover the hypermetropia with a mydriatic.

Treatment.—I consider faulty refraction to be at the bottom of the symptoms of eye-strain, and that the attending muscular anomalies have, in my experience, very rarely required correction by prisms in children; nevertheless, I deem it important to examine in every case as to the existence and extent of these anomalies. It is therefore important to test for insufficiency of the ocular muscles. Now, as to the muscles which are most likely to be at fault in the condition under consideration, there is some divergence of opinions.

Noyes believes that weakness of *abduction—i. e.*, weakness of the external recti—is a far more fruitful cause of muscular asthenopia than is weakness of adduction—*i. e.*, weakness of the interni. Others find the difficulty more largely in the interni. Randall has found that upward of fifty per cent. of hypermetropes, presumably normal, who did not consult him on account of their eyes, have insufficiency of the internal recti muscles of from 2° to 12°. Among his eye patients the proportion was greater still; this is also my experience.

Let me now say a few words about the tests for faulty power of the muscles which move the eyeballs. Of the two tests employed for this purpose, there is apparently some disagreement as to which is the more trustworthy—the *abduction and adduction tests*, which show the relative strength of the muscles as indicated by their power to overcome prisms at 20 feet, or the vertical *diplopia* test of Albrecht von Graefe, which are supposed to be only different methods for obtaining the same facts. These tests often show, as every eye surgeon knows, conflicting results. For instance, some patients who show by the vertical diplopia test an apparent insufficiency of the internal recti muscles, can overcome all the prisms in our trial case put together with the internal recti. For some years I applied these two tests in all my refractive cases, but it was not until I had compared the results obtained in over 1,700 carefully recorded cases that I came to apply them only in exceptional cases. I found the results to vary and conflict very much on examination of the same individual on different occasions. The vertical diplopia test has been more trustworthy in my experience in giving the relative strength of the internal and external recti muscles; moreover, it consumes much less time. This test is too familiar to need description here, but there are a few points in connection with it which should be emphasized. Von Graefe suggested as the test object, a fine dot with a line running vertically or obliquely through it. This line was originally introduced to enable the patient to say whether the images were exactly vertical or not. Now, it should be remembered that von Graefe, in his great paper (in 1869), discussed this test in connection with myopia and muscular insufficiency, where there was little occasion to take the accommodation into account. But in the insufficiency associated with hypermetropia, if we are to give this test a fixed value, it is of great importance to call into action the power of accommodation at the same time that the muscular balance is sought for. Several devices may be employed for this purpose. Hansen (1876) suggested the use of a short word. Thus you may use a short word from Jäger's No. 1 test type placed in the center of a white card, which must be seen distinctly when held firmly at the usual reading distance in order to hold the accommodation fixed. Dr. Edward Jackson employs a group of fine dots made with a fine pen, and requires the patient to count them in order to call the accommodation into action. I use the word devise, placed firmly at about 30 centimetres from the eyes, and produce diplopia by a 6° or 8° prism, base down or up, over one eye, to get the lateral balance, or a stronger prism, base in, to test the vertical balance. I repeat the test and average the results, because the repetition is very important in order to show the habitual relation between accommodation and convergence.

We shall save time by employing the revolving prism of Risley.* This test should be made through the glasses which correct the ametropia. When presbyopia or high myopia is present, the test should be made through the glasses used for reading.

If we now turn to the question of correction of the faulty refraction, we find the subject, like the one just briefly discussed, beset with many difficulties, and so many factors have to be considered, and the subject is so vast, that the time allotted to me will not permit me to discuss it adequately. I shall therefore only in a general way refer to some of the more important points which have guided and helped me in giving relief to the subjects of eye-strain who have consulted me.

In the first place, never hurry in making your examinations, or you will certainly do a double harm; for you will commit errors which will reflect on your own reputation, and you will fail to relieve your patients.

It is certainly nothing but the carelessness which hurry begets that could have led a capable and distinguished ophthalmologist to declare that glasses were unnecessary in a young boy when a correcting positive glass of 2 D. was worn with comfort and relief to the patient. Repeat your tests not only at the first but also at subsequent visits, especially when you find that various combinations of glasses give the same result.

It has been shown that faulty refraction is the rule at all periods of life, that hypermetropia predominates, and that astigmatism is a conspicuous factor in eye-strain.

Since faulty refraction is so commonly present, the guide as to its correction should be the presence of asthenopic symptoms, and in this connection let me emphasize the importance of paying due respect to low degrees of refractive error which may be present in asthenopia, and especially slight degrees of astigmatism. When this particular point was discussed two or three years ago in the American Ophthalmological Society a prominent member declared that a cylinder of 0·25 D. was a placebo only; but, gentlemen, the correction of so slight a degree of astigmatism as 0·25 D. has frequently, in my experience, been attended by very satisfactory results to the patient, and I know that this is the experience of many of my colleagues.

Now, as to how much of the existing hypermetropia or myopia or astigmatism present we should correct in part or all: First, as to myopia. When eye-strain is present in the lower grades of myopia it seems to be precipitated by the disproportion between accommodation and convergence, and we do most toward restoring the normal relation by correcting the myopia. As a rule, I would not give full correction to myopes.

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* Dr. Samuel D. Risley, of Philadelphia, has devised a convenient form of rotary prism, which is made to fit into the ordinary trial frame.

As to hypermetropia, the question of giving the full correction will depend on several considerations, chief among which is the condition of the accommodation and the external ocular muscles, for the finding in these parts will furnish with the history the data for deciding as to the glass to be given. It is the custom of some oculists to give in asthenopia the total correcting glass—*i. e.*, the glass which the patient accepts under the influence of a mydriatic—which they prescribe to be worn at once, without waiting for the effects of the mydriatic to wear off. Many hyperopes will complain of annoying blurring with their correcting glasses when the mydriatic wears off, and will, in consequence, see imperfectly at a distance with the glass which corrects their total hypermetropia, the explanation for which is that the tension of the accommodation, even for distant vision, habitual to hypermetropes, returns as the effects of the mydriatic wear off. If the annoyance from this source does not soon wear off we may have to reduce the strength of the convex spherical. Any considerable degree of insufficiency of the internal recti at thirty centimetres would contra-indicate the correction of the total hypermetropia, because exclusion of the effort of accommodation would exaggerate the weakness of the internal recti. It would therefore in such cases be necessary, in order to be able to wear the total correcting glass, to produce with it a prismatic correction by decentering the convex spherical lenses. It is often inexpedient to use a mydriatic; then we must rely on the tests which I have mentioned, together with the controlling tests with the ophthalmoscope and other methods, and endeavor to obtain relief by giving an undercorrecting glass. Aside from the advantage derived from a mydriatic in enabling us to correctly measure the refraction, it may be actually called for in order to give the eye a needed rest. Any existing intra-ocular changes indicative of an active inflammatory process must, of course, receive independent attention. Astigmatism should be fully corrected. Make it a rule always to verify the strength and fit of the glasses you order.

It is almost needless for me to add, after what I have said, that any condition of the general health which may have a bearing upon the eye trouble must receive strict attention, or we should be as explicit in giving instructions in all that relates to general hygiene as we are with respect to the local appliances.

It will be seen from these general remarks that the successful management of the varied distressing symptoms of eye-strain, among which headache is often conspicuous, involves a thorough appreciation of the relations of the refraction to normal vision, intra-ocular health, and comfort in exercising the functions involved in adjusting the eye to the demands of a higher civilization.

9 West Twenty-second Street.

A Medical Congress, having for its object the promotion of temperance, will be held at Prohibition Park, Staten Island, on Wednesday and Thursday, the 15th and 16th inst., under the presidency of Dr. N. S. Davis.

TWO DRACHMS OF IODOFORM AT A DOSE.

By H. W. FRAUENTHAL, M. D.

The case that I am about to cite is of interest on account of the large dose of iodoform taken by the mouth, the length of time it remained in the intestinal tract, and the comparatively mild symptoms produced.

In response to a call at the Eastern Dispensary, I visited Bridget M., who was suffering from a large axillary abscess. Previous to my first visit the abscess had been poulticed, and I ordered this continued, and prescribed for two drachms of iodoform, to be used in subsequent dressings, and an order for bandages. I requested the nurse (a sister-in-law of the patient) to keep everything after she received them until the next day, which was Friday, or the following day, when I would call and open the abscess.

I called in the afternoon on Saturday and was told that the patient was given the two drachms of powdered iodoform (the amount put up by the dispensary apothecary) on Thursday evening. I hastened in to see the patient, who said she had taken the powder on Thursday evening and felt no effect until Friday night, when she was taken with severe headache, griping pains in the abdomen, and purging, which continued all day Saturday. This in no way alarmed her.

On Monday the pains had disappeared. She had no after-symptoms of irritation. The odor was in her breath for several days; also the taste remained in her mouth.

The abscess being so extensive as to require ether, I transferred her to Bellevue Hospital, where she is now.

In justice to the apothecary, I will state that a label "for external use" was on the powder.

A PIN SWALLOWED PASSES PER URETHRAM.

By J. P. TUTTLE, M. D.

K. D., aged five years, while playing with a bent pin in her mouth, suddenly caught her breath and drew the pin into her throat. It lodged in the fauces, but, upon her mother attempting to remove it, was dislodged and swallowed. This occurred on the 12th of December. Fearing too great peristaltic action with a sharp-pointed foreign body in the alimentary canal, I gave no cathartics, but had the patient fed on food containing a large proportion of excrementitious matter and the stools constantly examined to find the pin if it should pass. Ten days elapsed and, nothing having been seen of it, I had about concluded it had imbedded itself in some of the intestinal folds or been overlooked in the dejections, when the father called to tell me that the child had passed the pin upon urinating that morning. She complained of sharp pain upon making her water, and, looking in the vessel, found the pin somewhat corroded but otherwise just as when she swallowed it.

The passage of the pin through the intestinal wall is not so remarkable as its passage from the bladder after it had once fairly entered that organ. Of course, it is possible the pin may have passed from the rectum through the vagina and not entered the bladder at all, but the child's symptoms indicated irritation of the latter organ.

Change of Address.—Dr. Alexander Duane, to No. 25 East Thirty-first Street.

THE
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RECENT RESEARCHES REGARDING FAVUS.

According to the *Medical Press and Circular*, Professor Pick has recently addressed the Society of Physicians of Prague regarding his culture experiments with the fungus of favus, after giving an historical review of the work done in this field since the discovery of the fungus by Schönlein, in 1836. Four years later came the pathogenic confirmation by Remak, and since his day numerous investigators have been engaged with the problem of dividing the mycoses of the skin into what are supposed by many to be subordinate genera of fungi, such as those of herpes tonsurans and mycosis versicolor—a problem quite as difficult to solve to-day as it was years ago. Loh, in 1850, was the first to experiment with cultures of the parasite of favus, and he was led to decide that it was identical with *Aspergillus glaucus*. Hebra affirmed, from his clinical observations, that the fungi of the three diseases named above were one and the same, and could be developed the one from the other. Pick himself, while an assistant to Hebra, experimented by inoculating the healthy, and he found not only that he could get favus from favus, but also that a form would appear not like the common favus, a disease which closely resembled herpes tonsurans circinatus; on the other hand, inoculating from the herpes never produced the common form of favus. In 1877 Grawitz discovered that the fungi of favus, of herpes tonsurans, and of mycosis versicolor were identical in biological and morphological appearances with *Oidium lactis*. From this he argued that the four fungi were the same in origin. In 1886 he came to a diametrically opposite conclusion after a few experiments with the culture method. About the same time, Quincke found three different kinds of fungus in favus, which he designated *a*, *b*, and *c*, but his subsequent experiments forced him to admit that *b* and *c* were identical, thus leaving, according to his opinion, two distinct forms. Last year, at the Dermatological Congress in Prague, Kral reported his culture experiments, made at his own clinic, stating that he had found that matter taken from scutula and hair cultures gave only one fungus, and when again cultivated gave one, but three months later, when the same patient was examined, there were two other fungi present, which on culture were found to be perfectly distinct forms. In another patient also, under like circumstances, three different fungi were found.

Examinations made since then seem to prove that these are very different fungi from those described by Grawitz. Pick has this year made inoculations with favus from a female patient in his own clinic, and has obtained the same results as Kral did last year. From scutula he inoculated seven healthy persons, some of them epidermally, others subepidermally, but in all the cases with the one result—a distinct scutulum. Again, a culture was made in nutrient material, from which others were inoculated, but the same result was arrived at—only one fungus. From these results he believes that Kral was correct in affirming that there was only one fungus in favus.

CONGENITAL OCCLUSION OF THE URETHRA.

Two cases of this rather rare condition are reported by Dr. Adams in the *British Medical Journal* for February 28th. The literature of the subject is scanty, and many works on surgery make no reference to it whatever. Gross says that the most common congenital vices are closure or contraction of the meatus or a change of form of the urethra. When occlusion is simply caused by a duplication of the lining membrane, forming a thin, curtain-like obstruction, a simple incision is all the treatment required. When occlusion is due to the presence of fibrous tissue, a more serious operation must be performed with a trocar. Duplay says that these obstructions may result from gluing together of the two corresponding halves of the penis, and may occupy any point in the canal, but the meatus is the point of election. The first case seen by the author was in a weakly child who died forty-eight hours after birth. The urethra would not admit the passage of a probe or a catheter. The second child having passed no urine, a probe was passed a short distance into the urethra, where it met with an obstruction. A soft French catheter was then passed and, considerable pressure being applied, was forced past the obstruction. The urine flowed freely and there was no further trouble.

In simple cases, where the occlusion consists of a mere membranous veil, it should be incised and kept open by passing a bougie daily for a week. When it is situated deeper, a nonmetallic catheter should be thrust through it, considerable force being applied. In the rarer cases in which the urethra is obliterated for some distance, three courses are open—namely, the forcing of a passage by means of a curved stylet or a small curved trocar and cannula; perineal cystotomy; and suprapubic puncture. The plan of forcing a passage is unsurgical and hazardous, for the work is done in the dark and without a guide to rely upon.

An argument in favor of the procedure is that it has been employed successfully in a number of instances. By perineal cystotomy by the median method, with the finger in the rectum, the distance to the bladder is short and, as that organ would be distended, it would be found easily. The author would give the preference to suprapubic puncture with a small trocar as being simplest and safest. A rubber catheter could be fixed and left permanently. When the child is older the suprapubic opening could be enlarged, the bladder explored, and a passage made from its interior by means of a curved trocar and cannula.

In a subsequent number of the same journal Campbell reports a case in which there was apparently no urethra. By the use of a sharp probe, a blunt probe, a stylet, and a small catheter, after prolonged effort, a passage was found to the subpubic arch. The stylet was then forced forward and evidently entered the bladder. Urine was soon passed freely, and at the age of three years the child suffered no inconvenience in that direction.

MINOR PARAGRAPHS.

A MEMBRANE LINING THE FOSSA PATELLARIS OF THE CORPUS VITREUM.

According to the account usually accepted, the vitreous humor lies immediately against the posterior layer of the lens capsule, and the anterior surface of the vitreous is not invested by a membrane. Dr. Anderson Stuart, in an interesting paper published in the *Proceedings of the Royal Society* for February 5th, dissents from this view, having found a membranous structure in this situation in the eyes of the lower animals and in sections of the human eyeball. He contends that it can be dissected out and examined in any unaltered ox's eye. The dissection is best done twenty-four hours or more after the removal of the eye. Then, when the sclerotic and chorioid have been opened, the vitreous and lens, united by the suspensory ligament, drop out in a mass or are very easily expressed. The suspensory ligament is snipped all round and the lens removed in its capsule. A membrane is then found stretching from side to side and lining the bed of the lens, the fossa patellaris, so completely that in no part of its extent does the substance of the corpus vitreum reach the surface. A chemical proof of the existence of this membrane is afforded by staining with picrocarmin. This stains the hyaloid and other elastic membranes of the eye red and the vitreous yellow. A red membrane quite distinct from the yellow vitreous can be seen at the edge of a puncture in the floor of the patellar fossa. Further evidence, optical and mechanical, is adduced in favor of the existence of this membrane, as well as of its character as a distinct membrane instead of a possible superficial layer. It can be isolated, stained, and examined microscopically. Dr. Stuart also mentions, in support of the existence of this membrane in front of the vitreous, that the vitreous will remain many days in water unchanged, as long as its investing membranes are intact, but if these become injured a marked change takes place. He declares that this deteriorating change never appears upon the uninjured anterior surface of the vitreous where it is still covered with membrane, and concludes, therefore, that upon this anterior surface vitreous substance does not come into contact with water, but is protected by a membrane not notably acted on by water.

SYPHILIS AND MARRIAGE.

Dr. W. Loudon Strain, in the *Glasgow Medical Journal* for February, considers this subject in a long article illustrated with histories of cases which are collected into elaborate tables. He divides these cases into five classes. Class I consists of cases in which both man and woman had contracted syphilis by chancre. Class II comprises cases where only the woman had had chancre, and the man was not syphilitic. The result on procreation in both these classes is similar, and is very disastrous. Frequently the disease seems to destroy the power of conception entirely, or, if conception does take place, abortion, or, at best, a child which suffers severely from syphilis, is the result. Class III includes cases in which only the man had had chancre, and the woman was infected through the fœtus. Class IV is made up of cases in which the man had had chancre and the woman had no manifestations of infection. In these two classes the power of conception seems to be very little affected, but the result on the product of conception is still very serious. Abortions and miscarriages are very frequent, as well as children born dead or who die soon after birth. Many of these children are born at or near full term, but become affected with syphilitic manifestations, from which they may recover and grow up to be men and women. In not a few cases when the infection of the father had taken place four or more years before marriage, and when the mother had escaped the disease or had only the minimum of its manifestations, children were born who never at any time showed evidence of the disease. The same can not be said of the woman. If she has been infected through a chancre or through the fœtus, the effect seems to be of a more permanent kind. Class V consists of cases with a suspicion of hereditary syphilis. From a rather limited experience with these cases the author is inclined to believe that the tendency to destroy or weaken the reproductive power manifested by the syphilitic poison extends to the next generation; in other words, that in persons who have inherited syphilis the reproductive power is abnormally affected.

SYMPATHETIC OPHTHALMIA.

In the French Surgical Congress, held at Paris, from March 30 to April 4, 1891 (*Revue de chirurgie*), M. Abadie maintained that sympathetic ophthalmia was a malady of microbic origin. In consequence of a wound the injured eye is infected, and the infection involves the deep structures of the eye, and finally invades the optic nerve. The treatment he recommends is to cauterize the wound as soon as sympathetic inflammation appears, and to inject a drop of a 1-to-1,000 solution of bichloride of mercury into the vitreous of the wounded eye. It is difficult to understand the rationale of such treatment as this after the signs of sympathetic inflammation have appeared in the uninjured eye. If M. Abadie's theory of the microbic origin of the disease is correct, the infection has by that time traveled beyond and out of the injured eye, and such local treatment as he suggests would seem utterly insufficient to arrest its progress in the other eye. But he maintains that by this method the development of sympathetic ophthalmia may be arrested, and sometimes the injured eye may be saved. This sounds rather strange also because it is not usually considered best to remove an injured eye when sympathetic ophthalmia has appeared, as the chances are better of saving some sight in the injured eye than of saving the one sympathetically inflamed. When the sympathetic inflammation is slow and provoked by a painful stump, Abadie advises enucleation of the stump, with mercurial inunctions in heavy doses and prolonged for some time, associated with the surgical treatment.

NOTE ON THE PROCEDURE OF INJECTIONS INTO THE BILIARY DUCTS.

M. Roger (*Comptes rendus de la société de biologie*, Feb. 27, 1891) finds several serious objections to the generally accepted method of injecting the biliary ducts, and proposes his own as follows: After antiseptic preparation the abdominal wall is incised in the linea alba from the xiphoid cartilage to the umbilicus, an assistant elevating the inferior hepatic surface with a retractor covered with antiseptic cotton, being very careful not to tear this very friable organ. The operator finds the duodenum and, seizing it with the left thumb and index finger, pulls it out. Under the latter traction the ductus choledochus is found distended, and, as it always contains some bile, it is easily recognized. With the right hand the operator inserts the syringe through the duodenal wall at the point opposite to where the excretory bile duct opens into the duodenum; the cannula of the syringe is then directed toward the ductus choledochus and is introduced into the orifice of the latter, and the injection is made. The small intestinal puncture which is produced is of no consequence. The author has never seen any untoward complications follow this operation, and it has the great advantage of enabling one to avoid effusion of bile into the abdominal cavity, which almost invariably follows if the injection is made directly through the gall-bladder. Such injections are always successful, as is shown by the fact that if mercury, for instance, is injected, it is found after death in the hepatic parenchyma.

ON THE USE OF FUCHSINE IN THROAT AFFECTIONS.

Dr. K. Bogroff (*Vratch*, April 18, 1891) advocates strongly the use of the aniline preparations as antiseptic agents. In a case of chronic sympathetic pharyngitis, which was provoked by a tubercular condition of the lungs and larynx, in which the patient had great difficulty in swallowing, and all treatment had proved useless, a spray of a two-per-cent. boric-acid solution saturated with fuchsine cured the patient entirely of the pharyngitis. The spray forms an impermeable surface over the epithelial lining and shields the tissues from further irritation. It is remarked also that this treatment is especially suitable in cases of tubercular laryngitis, as the fuchsine stains the tissues with which it comes in contact and so facilitates observation as to whether or not the right spot is being treated.

THE ALLEGED CONTRAMALARIAL PROPERTIES OF PAMBOTANO.

Pambotano is the native name of a small tree, the *Calliandra Houstoni* (Baillon), growing in Mexico. In 1889 Dr. J. Valude brought the plant to the attention of the Paris Academy of Medicine as a remedy for malarial poisoning, and a report to that body on the subject admitted its apparent value. Recently Dr. A. E. Roussel, of Philadelphia, read a paper before the Philadelphia County Medical Society in which, after giving a summary of the experience recorded by several foreign physicians, who used a decoction and an alcoholic elixir, he presented brief accounts of eight cases in which he had used the drug. His results had been "decidedly encouraging," but "hardly as satisfactory as some of the reports from abroad." The preparation he used was obtained from Paris.

THE DEATH OF A MEDICAL MISSIONARY TO INDIA.

Dr. Sara C. Seward, for twenty years a medical missionary in India, died suddenly, of cholera, at Allahabad, on June 16th. She was a native of New York State. Her father was a younger brother of the late Secretary Seward. In 1870 she was graduated in medicine at the Philadelphia Women's Medical College. She was among the first of female practitioners to go to India for the purpose of carrying medical aid to the women of that country, whom no male physician was ever permitted to see, and during seventeen years of her medical life was under appointment by the Presbyterian churches of this country. She founded a dispensary for the treatment of Hindoo women and children, at which, in the year 1890, there was a daily average of forty-four patients, all females.

ON THE PRESENCE OF PSEUDO-MICROBES IN NORMAL BLOOD.

According to the experiments of M. Kolmann, given in the *Journal des sociétés scientifiques* for September 24, 1890, the following microbes are found in normal human blood: 1. Round or elongated punctiform elements not larger than one micromillimetre in diameter, which may be agglomerated in diplococci, streptococci, bacilli, etc. 2. Larger organisms, spheroidal or oval in shape. 3. Corpuscles with filiform prolongations analogous to those found in malarial poisoning. Very often they are seen to exhibit active movements. According to the author, the pseudo-microbes originate mostly from the red blood-cells, but probably also from the leucocytes and hæmatoblasts. An attempt to detect them by means of staining agents as well as that to produce a culture proved them not to be microbes. M. Gualdi, of Rome, found these pseudo-microbes in three hundred cases of malarial disease. He found, however, the same in the blood of apparently healthy persons.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 7, 1891:

DISEASES.	Week ending June 30.		Week ending July 7.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	1	0	3	0
Typhoid fever	9	5	12	3
Scarlet fever	119	21	115	22
Cerebro-spinal meningitis	0	0	0	2
Measles	232	21	181	14
Diphtheria	51	18	77	35
Small-pox	0	0	0	0
Varicella	5	0	0	0
Whooping-cough	0	5	1	0
Erysipelas	0	0	0	0
Mumps	0	0	0	0

The Inter-Continental American Medical Congress.—The committee appointed by the American Medical Association to effect a permanent organization of the Inter-Continental American Medical Congress met at the Arlington, Washington, on May 7th. The following officers were elected: Dr. Charles A. L. Reed, of Cincinnati, chairman; Dr. J. W. Carhart, of Lampasas, Texas, secretary; Dr. I. N. Love, of St. Louis, treasurer. On motion, the officers were appointed a special committee to draft a constitution and report the same at an adjourned meeting of the general committee, to be held at St. Louis on Wednesday, October 14th, when the time and place of meeting of the congress will be decided upon and permanent officers elected.

The Medical Society of the County of Otsego, N. Y., will hold its eighth-sixth annual meeting at Cooperstown on Tuesday, the 21st inst., under the presidency of Dr. W. R. Lough, of Edmeston. Besides an address by the president, the Rev. O. H. McAnulty will give an address on The Faith Cure and Christian Science, and Dr. J. H. Moon will report cases.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 21 to July 4, 1891:*

Carter, Edward C., Assistant Surgeon. Relieved from duty at Fort Walla Walla, Washington, and assigned to duty at Fort Canby, Washington.

Patzki, Julius H., Major and Surgeon. By direction of the Acting Secretary of War, the leave of absence on surgeon's certificate of disability granted in S. O. 99, May 1, 1891, from this office, is extended two months on surgeon's certificate of disability. Par. 15, S. O. 142, A. G. O., June 22, 1891.

Skinner, J. O., Captain and Assistant Surgeon, will, upon the abandonment of Fort Davis, Texas, proceed to Fort Clark, Texas, and there take station.

Ewing, C. B., Captain and Assistant Surgeon, is granted leave of absence for one month.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending June 27, 1891:*

HAMILTON, J. B., Surgeon. Ordered to Washington, D. C., on special duty. June 9, 1891.

GEDDINGS, H. D., Assistant Surgeon. Ordered to New York on special duty. June 13, 1891. Ordered to Washington, D. C., on special duty. June 26, 1891.

WERTENBAKER, C. P., Assistant Surgeon. When relieved at Galveston, Texas, to proceed to Chicago, Ill., for duty. June 23, 1891.

SMITH, A. C., Assistant Surgeon. Relieved from duty at New Orleans, La.; ordered to Galveston, Texas. June 23, 1891.

STIMPSON, W. G., Assistant Surgeon. Ordered to New York for temporary duty. June 12, 1891.

ROSENAU, M. J., Assistant Surgeon. When relieved at Chicago, Ill., to proceed to New Orleans, La., for duty. June 23, 1891.

Letters to the Editor.

THE CASE OF TRANSFER OF A PATIENT FROM THE GERMAN HOSPITAL TO BELLEVUE HOSPITAL.

136 EAST EIGHTY-SECOND STREET, *July 7, 1891.*

To the Editor of the New York Medical Journal:

SIR: Will you kindly grant me the privilege of answering, in a brief space of your valued journal, the letter addressed to you in the issue of July 4th by "A Visiting Physician to Another Hospital," on the subject of The Transfer of a Patient from the German Hospital to Bellevue Hospital?

I had the honor of being one of the mixed jury referred to in such disparaging terms by your correspondent, and I hope to be able to convince your readers that the verdict delivered by us was quite consistent with the facts of the case and the evidence adduced.

The verdict, let me add, was the result of minute and painstaking inquiry during the investigation, of mature deliberation, shared in by every member of the jury, and of harmonious action after its completion. The questions upon which we found it incumbent on us as jurors to bring in a verdict were the following:

1. Was the treatment of the patient while at the German Hospital correct?

2. Is the prevailing custom of indiscriminately transferring patients suffering with acute febrile diseases from one hospital to another, at a distance, to the best interests of hospital patients?

3. Did the transfer in the case of the patient, Sarah Freeman, contribute to her death?

4. Is it advisable, when a transfer becomes imperative, that a history of the disease and its treatment while at the first hospital accompany the patient upon his admission to the second?

As your correspondent passes over questions 1, 2, and 4 in silence, I conclude that he has no fault to find with the greater and more important portion of the jury's verdict. May we not say that he coincides with that part of the verdict which deals with questions of vital interest to the public, and particularly to the class which must intrust itself to the judgment and humanity of hospital authorities?

Only to that clause of the verdict which relates to the individual culpability of the German Hospital does your correspondent take exception. The history of the case being in the main as stated in the beginning of the letter, let me pass immediately to the points raised against the verdict as inconsistent with the facts in the case and the evidence produced.

The patient suffered with an acute inflammatory disease. It was acute in that it was of short duration, according to the testimony of the physician attending her before admission and of the physicians at the German Hospital; it was inflammatory in that it was accompanied by putrid inflammation of the endometrium caused by a retained portion of the placenta, as testified to by the physician who performed the curettement. The testimony showed further that all the cardinal symptoms of inflammation and fever were present; in fact, all the evidence tended to show that the case was one of puerperal fever with maniacal delirium rather than of puerperal insanity with septicæmia, and was considered such by the hospital physicians. It was put in evidence that it was not customary to admit cases of insanity at the German Hospital, and, had this been considered one, it would not, presumably, have been admitted.

That an acute inflammatory disease then existed is evident, but that this could only have been "an acute septic peritonitis" your correspondent surely can not seriously mean. If he does, the merest medical tyro will refuse to accept the statement. The jury did not think so. But it *was* of the opinion that the transfer of a patient eight hours after the operation of curettement, with a temperature of over 102° F., would contribute to develop peritonitis. In admitting that the jury had a right to consider this contingency, the second exception to its verdict which your correspondent takes is nearly answered. Granting that the patient had only "septic puerperal mania," that the cleansing of the uterus had lessened the virulence "of the puerperal poison circulating in the blood," would your correspondent maintain that the woman's condition was not deleteriously affected by the fatigue and excitement of a ride of over three miles in the ambulance on one of the sultry nights of last month, when her vital powers had been enfeebled by continued high temperature, when she had barely had time to recover from the shock of an operation, and when she had, according to the evidence of the nurse, refused to accept any nourishment or medicine for at least ten hours?

Let me ask any of your readers whether he would have consented to allow any patient in whose welfare he was interested to undergo such treatment?

Let me say, in conclusion, that I served unwillingly on this jury; that before the investigation was opened I was prejudiced in favor of the German Hospital, and on this account asked the coroner to excuse me. But, having taken the oath to render a verdict in accordance with the testimony given, I felt in conscience bound to find as the verdict stands, and of this I am willing to bear my share of the responsibility.

CHARLES SCHRAM, M. D.

Proceedings of Societies.

SOCIETY OF THE ALUMNI OF BELLEVUE HOSPITAL.

Meeting of November 5, 1890.

The President, Dr. CHARLES PHELPS, in the Chair.

A Case of Congenital Stricture of the Œsophagus was presented by Dr. GEORGE W. CRARY. The patient was twenty-one years of age and had come to the Roosevelt Hospital Dispensary in September, 1889, with the history of having had difficulty in swallowing ever since birth. Even when a nursing infant the milk had been frequently regurgitated. At the age of twelve years he had been troubled by frequent aggravations of his trouble, extending over long periods. At such times he had been unable even to swallow water, and he would become so exhausted that he would have to remain in bed until the stricture relaxed sufficiently to allow of his taking fluids. When a child he had been seen by a number of physicians, but the history would seem that they only considered his general health and appearance, as he had been told that he could not live in New York city. He had then gone to France, and there a Parisian physician had passed a bougie into his throat. As he did not return to this physician, the speaker never knew his opinion in regard to his condition. After his return to this city he had again been told that it was unsafe for him to live here, so he had gone to Mexico for six years, during which time these attacks had recurred at intervals. Even under ordinary circumstances, he said, he had been unable to take any solid food except when very minutely divided, and that even then it had become necessary for him to leave the table before finishing a meal in order to relieve himself of some of the food which he had taken. When he had first presented himself at the Roosevelt Dispensary he had shown plainly the effects of malnutrition, being much thinner than now, and almost too weak to walk to the dispensary. On hearing the history it was suspected that there was an œsophageal stricture, and after much difficulty a bougie (about No. 20 French) was passed through the œsophagus to the stomach. The stricture was found to be a long one and was situated fourteen to sixteen inches from the teeth, diminishing in caliber as it approached the orifice of the stomach, near which opening it was evidently located. A bougie of this size was passed three times a week for about two months, at which time it passed quite easily. Since then the stricture had been very gradually dilated, until now it would admit an instrument about eight millimetres in diameter. No further dilatation seemed likely to be effected. The passage of the bougie sometimes caused quite distressing pain in the epigastric region, but, except at the very beginning of the course of treatment, no pain continued after its withdrawal. Only after the first introduction of the instrument was there any bleeding, and this was very slight. Lately a bougie had only been passed about once a week, as the patient had gained sufficiently in health and strength to be able to keep steadily at his work. The results of treatment had been very satisfactory. Since the passage of the first bougie there had been no regurgitation of food, and, with some restrictions as to diet, he had been able to live quite comfortably. He now drank easily and was able to take almost all kinds of solid food except the firmer meats. He could not yet manage beefsteak, but he was able to eat lamb, mutton, and veal.

The history of the patient and of his family had given no evidence of syphilis or of tuberculosis, and the stricture was probably due to an arrest of development, by which the formation of a free communication between the œsophagus and stomach was prevented. (The bougie was then passed into the patient's œsophagus. It was found to be firmly grasped from the pharynx down.) The speaker said that one of the members had suggested that if a conical bougie was employed it might be possible to further dilate the stricture. Such a bougie had been tried, but the conical end was found to project so far into the patient's small stomach that it gave rise to great pain, necessitating the abandonment of this form of bougie.

Meeting of December 3, 1890.

Cortical Hæmorrhage.—Dr. H. M. Biggs presented a specimen from such a case. He said that there was no clinical history, as the subject had been found by a policeman leaning against a wall—a rather strange position to preserve after death. It had at first been thought to be a case of asphyxia from a foreign body in the larynx. There had been fluid blood everywhere, with marked congestion of the larynx, trachea, lungs, and all of the other viscera. The pleura and pericardium had been the seat of petechial hæmorrhages. In the cranial cavity had been found the cause of death, and also the cause of the fluidity of the blood and the apparent asphyxia. Immediately under the scalp there had been a large hæmatoma, and on opening the cranium a large cortical hæmorrhage covering the whole left side of the brain had been exposed to view. It had been entirely between the dura and the pia, and not at all in the meshes of the pia mater. Situated at the base, in the temporo-sphenoidal lobe, exactly corresponding in position to the area of atrophy found in the case presented by Dr. Phelps, had been an area of contusion with laceration of the pia. There had also been a small area of contusion on the under surface of the frontal lobe. The hæmorrhage undoubtedly came from the rupture of small vessels in the area of contusion already described. It too had evidently been a case of injury by *contre-coup*, the blow having been received on the right side of the vertex. It was an interesting fact that almost invariably where there was contusion of the brain in these cases it was either on the lower or lateral surface of the temporo-sphenoidal lobe, or on the under surface of the frontal lobe, without regard to whether or not it was associated with fracture. In the case just reported there had been no fracture. The occurrence of contusion so frequently in these situations was explained by a consideration of the mechanism of the most common cases of *contre-coup*. In almost all cases of injury to the skull, whether from a fall or from a direct blow, the upper convex surface of the skull was the part which was injured, and as a result the cerebro-spinal fluid was driven with great force from the site of the traumatism to a point directly opposite, almost invariably producing laceration of the portions already mentioned. The speaker had frequently seen these injuries at autopsies, where there were also evidences of injury to the skull, which had been produced months or years before, and from which the patient had entirely recovered. These facts were doubly interesting in view of the recent advances in cerebral surgery. In the present case death had unquestionably been caused by the intracranial pressure, and the hæmorrhage had been of a kind which would have permitted of the easy removal of the clot by operation. The injury to the brain had been so slight that it in itself would certainly have produced no permanent injury. There were few surgeons and clinicians who had any conception of the frequency with which these cases occurred. In the last two months and a half the speaker had seen at least eight or nine such cases, and in every instance, if surgical interference had been invoked sufficiently early, the operation would certainly have been a success. Many patients were admitted to the Bellevue cells for alcoholism, and died without a conception of their true nature.

A Peculiar Case of Poisoning.—Dr. H. H. Seabrook reported the following remarkable and rather puzzling case of poisoning: In September of this year a woman, forty-seven years of age, had taken a wreath which had been hanging on the wall for months and thrown it into the fire. While it was burning she had noticed some irritation of her throat. Within a day she had begun to have trouble with the throat and to suffer from general malaise. On her arrival in this city, membrane had been found in the fauces and mouth, and later on there had been an infiltration of the mucous membrane of the genitals and patches of eruption had made their appearance on the palms where she had grasped the wreath. The membrane had been grayish and evidently not very deep, as it had come away readily, leaving a rather dry-looking excoriation. There had been a slight elevation of temperature, never above 102° F., and this had quickly declined. Lastly, on the fourth day of the attack, the eyes had become affected, and she had been seen by Dr. Seabrook on the following day. At that time a dense membrane had glued together the edges of the eyelids and the lids to the eyeball, but they could be separated. There had been very little swelling of the lids, which had not been extremely hard, as they were in diphtheritic cases. In the latter form of conjunctivitis the primary secretion was serous, and the infiltration extended through all the tissues of the lids; in this case the infiltration had been apparently not in the tissues of the lids, but had been found mostly upon the lower portion of the eyeball. The deepest infiltration had been just within the margin of the lower lid, which might possibly be explained by the hands rubbing the eyes without getting under the eyelid. The membrane had been closely attached here, but could be separated, leaving bleeding points on the conjunctival surface of the lid. The patches of infiltration on the eyeball had apparently extended deeper than the posterior or anterior conjunctival circulation, for the proper substance of the cornea had been cast off almost *in toto* from the right and from the lower half of the left eyeball. There had been perforations of both corneæ, but no infiltration into the substance of the eyeball through these perforations. The eyes had at first been treated by atropine and the constant use of hot bichloride compresses, but they did not do well, and accordingly, about the ninth day, the treatment of the left eye had been changed for eserin and cold. This had stayed the process somewhat. In the diphtheritic form the membrane usually lasted about ten days; in this case it had lasted for about two days. Perforation on the right had taken place on the tenth day, and on the left about one month from the beginning of the trouble. Shortly before this it had seemed as though it would escape this; for, although there had been an enormous corneal ulcer which had become infiltrated with pus, this had been absorbed, first from the cornea and then from the anterior chamber, showing abscess of the tissues of the iris. But after this, when the tissues of the cornea were regaining their transparency, perforation had occurred. By the use of eserin the lens had not been affected and a fair amount of vision had been obtained.

This case had been treated in the house of a well-known physician of this city, and four physicians had been associated together in its management. It was not until the end of the case that Dr. C. S. Bull had agreed with the speaker in classifying it as a diphtheritic conjunctival affection. Dr. Le Roy M. Yale had said that he had seen the throat symptoms and the constitutional disturbance exhibited in this case in a patient who had been poisoned from the inhalation of the fumes of burning poison ivy; and Dr. R. F. Weir had seen a case of ivy poisoning in which the prepuce had been the seat of a fibrinous infiltration. The membrane from the present case had not yet been examined microscopically, but it was safe to assume that it would be found to consist of fibrin, leucocytes, and epithelial cells from the conjunctiva, with various micrococci.

In answer to questions from Dr. Syms, Dr. Seabrook said that the cause of death of the person from whose grave this wreath had been removed was not known, but the wreath had been hanging on the wall for at least four months. Then, again, the symptoms had not been those of ordinary diphtheritic conjunctivitis, and the lesion of the eye had been the last to appear.

A Case of Cyanosis.—Dr. W. R. BALLOU reported such a case. The subject, a second child, was born on October 30th, and on the day following was restless and slightly cyanotic. The cyanosis had increased and was accompanied by dyspnœa on being placed upright. A sudden attack of dyspnœa had terminated fatally seventy-six hours after birth. The only ætiological factor that could be discovered was that two weeks before birth the mother had slipped on the stairs, causing considerable jarring. Cases having a similar origin had been reported by Dr. J. Lewis Smith. The same author said that he had not noticed much benefit from keeping such a child lying on the right side. In the present instance this measure had greatly relieved the dyspnœa.

Dr. H. M. BIGGS said that he had just seen a similar case, where death had occurred in about thirty-six hours. The cyanosis was very marked, and a systolic murmur was present. Death had also occurred in this instance in a paroxysm of dyspnœa. The autopsy had showed a malformed heart, the left ventricle opening directly into the right ventricle, and both pulmonary artery and aorta arising from the right ventricle.

Dr. W. N. HUBBARD recalled a case seen in the hospital in which there had been a systolic murmur, and the autopsy had shown a patent foramen ovale, the opening being about the size of a trade dollar. It was of especial interest on account of the fact that the subject was a well-nourished man about twenty years of age.

Dr. R. J. CARLISLE said that there was at present in Bellevue Hospital a "blue woman" about twenty years of age. The lips, fingers, and eyes showed cyanosis on marked exertion, and there was a double murmur at the pulmonic orifice.

Book Notices.

Medical Symbolism in Connection with Historical Studies in the Art of Healing and Hygiene. By THOMAS S. SOZINSKY, M. D., Ph. D., etc. Philadelphia and London: F. A. Davis, 1891. Pp. xii-171.

THIS little book is unique, dealing with a subject not often touched by previous writers. It shows great research and presents in a brief space many interesting and important matters pertaining to the history, mythology, and symbolism of medicine, with which an intelligent physician should be conversant.

Miscellany.

Insomnia of Gastro-intestinal Origin.—The following appeared as an editorial in the *Boston Medical and Surgical Journal* for June 25th:

Writers have dwelt much on the cerebral hyperæmia attending disordered states of the stomach. That indigestion causes insomnia by exciting the cerebrum is a matter of common experience. With many persons, even, the active exercise of digestion, if this be at all difficult, is incompatible with sound sleep. Such individuals refrain from lunching or partaking of a hearty meal before going to bed. Certain valetudinarians can not drink a glass of milk or eat a biscuit late in the evening without atoning for the indiscretion by hours of sleeplessness.

Such inhibition of the cerebrum by the stomach is of frequent experience in the nursery. The first thing the physician thinks of when consulted with reference to insomnia in a young child is the probability of indigestion as the main factor in the case. What is the quality of the food, what about the quantity, and what is the condition of the digestive organs? Attention to these points, in the absence of objective signs of importance as fever, will generally put one on the track of the cause and suggest the remedy.

The indigestion may be functional or organic, and all pathological conditions of the stomach are likely to be accompanied by insomnia. Structural diseases—as gastritis, ulcer, gastrectasis, cancer—cause sleeplessness, both by the pain and discomfort, and the consequences of indigestion which attend them. One of the most frequent symptoms of indigestion is flatulence. The stomach, by failure of the normal peptonization process, is inflated and oppressed by the gases of decomposition; the distended stomach presses on the thoracic organs, embarrassing the heart and causing troublesome palpitations. Toxic products are often formed by the mal-elaboration of peptones; these irritate the nervous centers and render the cerebrum hyperæmic.

But there is another aspect of the question. In persons with healthy stomachs and normal arterial tone the digestive process is not prejudicial to sleep. Somnolence, in fact, often attends digestion, especially after a hearty meal. This has been attributed to the flushing of the stomach—at the expense of the cerebrum—which is a necessary condition of its function. Digestion normally occurs without attracting the consciousness, and there is no reason why on proper occasions sleep should not follow a hearty meal in men as well as in carnivorous animals. It is not true that during sleep the digestive functions are practically suspended, as some authorities have said: "During sleep the medullary centers relax their activity, digestive fluids are not secreted, and the movements of the gastro-intestinal canal almost, if not entirely, cease."[*] It is surprising to meet with an error of this kind in a writer ordinarily so accurate as MacFarlane. The stomach and intestines continue their function during sleep, though with lessened activity; the secretions are not suspended; the unstriped muscular fiber continues a constant though diminished action; the spinal cord even seems preternaturally active, the inhibiting restraint of the cerebrum being withdrawn. In reality, in sleep all the essential functions continue to be exercised. Those most indispensable to life, circulation, respiration, digestion, etc., are performed as during the waking period, though more sluggishly. Thus, the heart beats more slowly during sleep. "*Pulsus in somno parvi, languidi rari*," says Galen. With the retardation of the circulation there is diminished activity of the secreting glands (gastric, intestinal, pancreatic, etc.), but in healthy persons these organs are adequate to the work imposed upon them, as is proved by the fact that multitudes can eat a full meal on going to bed, sleep soundly, and be ready for another meal on awaking. Nor can it be said that the peristalsis of the gastro-intestinal canal ceases during sleep any more than the contraction of other unstriped muscles (the arterioles, for instance), which are not under the will.

Germain Sée, who refers most cases of digestive insomnia to difficulties attending the secondary or intestinal digestion (and here he is seconded by MacFarlane), thus defines this kind of insomnia: "Intestinal digestion generally begins three hours after a meal and ends in seven or eight hours. The patient, we will suppose, sups at 6 P. M. At ten o'clock he goes to bed, but can not sleep till long after midnight. This is the time when the pancreatic-intestinal digestion is going on; when this is finished the patient goes to sleep.

"To prove that I am right as to the cause of the insomnia, let the patient eat a light supper at the usual time, or let him sup at four o'clock in the afternoon, and he will find that he will go to sleep at the proper time."[†]

In the treatment of insomnia from indigestion the quantity and quality of the food must be taken into account, the condition of the stomach, intestines, and the auxiliary organs.

(1) Errors are most frequently committed as to quantity. The digestive organs may be competent to dispose of a certain bulk without pain or difficulty, while an excess causes embarrassment to the stomach; decomposition and flatulence set in under unmolested microbic rule; putrid and more or less toxic gases and ptomaines are generated, and a "bilious" condition supervenes, such as every one has experienced at times. It is doubtless true that while multitudes are underfed, more persons are injured by excessive eating than by a spare diet. Insomnia naturally comes in as one of the consequences of overeating and overdrinking, for a burdened stomach will not let the brain rest.

The proper remedy for sleeplessness arising from this cause is apparent; it is to curtail the daily rations to the physiological standard. The necessity of eating slowly and deliberately with thorough mastication of the food is apparent; those that "bolt" their food are sure to eat to excess.

(2) Food of poor or insufficient quality produces anæmia and starvation of vital organs, including the cerebrum, and hence engenders insomnia. Physicians can not too much insist on the necessity of a full diet—that is, of an adequate admixture in the daily fare of albuminoids, fats, and carbohydrates. Food of indigestible quality produces essentially the same evils as excessive alimentation. Under this head may be included food improperly or insufficiently cooked (good cookery under our civilization has become indispensable to healthy digestion), and foods that most persons of sedentary habits find hard to digest, as unripe fruit, pastries, hot bread, fried pork, confectionery. Of course, butcher's meats should be selected that are tender and juicy, and, in the light of recent discoveries (Gautier, Selmi, etc.), it is doubtful if meat or game that has become high (*faisandé*) is fit for food.

Foods of themselves sufficiently digestible may become indigestible if too many kinds are eaten at a meal. But this brings us again to the evils of excessive eating.

It need not be repeated that he who would sleep well must avoid those articles of diet which have been found to be indigestible, or should indulge in them sparingly. Much depends, of course, on the muscular work done. Horace speaks of the *dura ilia messorum*. The hay-makers on the salt marshes need food hard of digestion—that is, food that is *slowly* digested, yielding up force for many hours; food that in common parlance "stays by," such as baked beans and pork, boiled beef and cabbage, and mince pie. Such persons sleep well, despite their hearty fare; it is especially the "brain-workers," the men of sedentary habits, that are upset by a rich diet.

(3) A healthy digestion presupposes a healthy state of the stomach, intestines, and accessory organs, and any derangement of these viscera must be corrected by suitable medicinal and dietetic means before normal sleep can be enjoyed.

To enter on a consideration of all these derangements would take more space than we have at our command. The hygienic treatment of indigestion includes dieting, exercise, recreation, cold bathing, etc. The cold shower-bath in the morning is sometimes a powerful aid to digestion. Exercise promotes a more vigorous circulation and favors peristalsis and chymification; equally necessary are change of scene, diversions, and the cultivation of a contented, cheerful frame of mind.

Among the medicinal means are:

1. Such as favor gastric digestion—namely, alkalies before meals, and acids, with pepsin, after. Clinical experience has proved pepsin to be of some value. Small doses of strychnine are useful.

2. For acid dyspepsia full doses of bicarbonate of soda are naturally indicated. Professor Sée advises dyspeptics with excess of acid secretion to take a drachm of bicarbonate of soda in hot water on going to bed. It is certain that in certain morbid states of the stomach and intestines, whether due to "*hyperchlorhydria*" or to excess of mucus, the beneficial sedative effects of alkalies are pronounced.

3. Constipation is another recognized cause of insomnia, whether by the reflex irritation of retained excreta or by the flatulence which frequently attends a loaded colon. Here the remedy is obvious; such laxatives as rhubarb, Glauber salts, cascara, enemata of hot water, etc. Persons who sleep poorly from this cause often find a hot-water enema on going to bed a sovereign remedy.

When that old bugbear, a torpid liver, is at fault (if this can be determined), of course a blue pill, a dose of euonymin or podophyllin, would seem to be indicated.

There is an acidity of the stomach which depends on abnormal acid ferments, the products of decomposition of starches or sugars in the food. In these cases, washing out the stomach by means of emetics and copious draughts of warm water every night for three or four nights, as MacFarlane recommends, often proves very efficacious. The same writer advises ferro-alumen in three-grain doses for pyrosis along with three drops of dilute hydrocyanic acid, and turpentine in ten-drop doses for flatulence, as most effective remedies.

The Power of Will in Disease.—The *Medical News* says editorially:

After a hundred years of history and education in scientific medicine, and in a country where shrewd common sense has been developed in the most backward-looking mind—at such time and under such circumstances it would have seemed impossible that the incurably sick, the paralyzed, and the maimed should by thousands flock to a priest to be cured of their diseases. The newspapers say the immense depot at Pittsburgh has of late seemed like a hospital, filled as it has been with the poor unfortunate invalids seeking Father Mollinger's supernatural aid to make them well. The father anoints and blesses, and the young man who "had not walked since childhood," upon command goes unassisted "from the altar-rail to the rear of the church, to the amazement of the vast audience." Though the report says the great majority are sadly disappointed—even the squarely impossible can not be done in these times—a number are found that with functional affections, under strong emotion, exhibit a change, or an increase of strength, so that the belief in "the power" is kept living.

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[*] *Insomnia and its Therapeutics*, p. 192.

[†] *Des dyspepsies*, etc. Second edition. Paris, 1883.

What is it that makes Father Mollinger, Christian science, faith cure, medical spiritualism, and to some extent homœopathy, possible in the nineteeth century? Were there absolutely no element of truth in these reported "cures," even the dullest dupe would come at last to some consciousness of the hocus-pocus. The manure of the soil nourishing these delusions is a truth too often ignored and neglected by scientific medicine. It is the truth of the power of the emotions, of the will—of the spirit, if you please—over the flesh; of life over the beginnings of disease, and even over disease and death itself. Races and nations differ greatly in their power of resisting and overcoming disease, simply by reason of the characteristic attitude of the will and the disposition of the patient toward the physical illness. Just so do all, even brothers, differ in the same way. Thousands are physically sick because mental resolution and spiritual domination are weak and illogical. This is strikingly true in reference to the beginnings of disease. The secret of continuous good health does not always consist merely in physical resistance or robustness, but in sharply conquering the subtle beginnings of corporeal abnormity by pure will-power. There are two homologues of this power that illustrate it exactly. Who has not seen whimsicality, crankiness, and oddity by self-indulgence slowly degenerate into monomania, and even into downright insanity? And, again, who can doubt that in the commencement many such persons are perfectly conscious of the abnormal tendency, and are, moreover, perfectly capable of *not* doing the ridiculous or self-forgetful things? They are at first driven by no imperious necessity. It is precisely so when one gives way to immoral courses of life. At first the voice of conscience is clear; by and by control is lost and the voice is entirely silent. The analogies obtain in the matter of health. The adage, "Resist the beginnings of evil," holds also here. All disease begins subtly, almost insensibly, as chill, lassitude, malaise, etc. Caught at this stage and fought down by a virile volition, that which by self-indulgence would have proceeded to genuine fever and illness may often be resolved into routine normality of health. A brisk walk of five miles in the teeth of exhaustion and weariness has saved many from severe illness. And so in types of disease that are, if one may so speak, more organic. The fact can not be disputed that many who have believed themselves incapable of walking, under powerful emotion their own will being supplemented and "relayed" by that of another, do really find that they can walk a little. Our confutation of the priest's supernaturalism consists precisely in this proved power of the will. Doubtless orthopædic appliances are often given patients who need only resolution, encouragement, and repeated trial in order to develop by exercise the strength that the crutch really conceals or neutralizes. In the sick-room every experienced practitioner knows how much depends upon the *morale*, the resolution of the patient, and how even death and life may depend upon the will. All this, when we read it, seems trite enough, but its significance is lost sight of in the battle of rival theories of disease, and to some it must seem the froth of nonsense. But the practical lesson of the very obvious truth consists in the simple duty of arousing the will to self-confidence and corporeal domination. As has been well demonstrated, the best cure for the most outrageous hysteria is mental and volitional control—supplanting the patient's diseased imagination by a healthy one—true faith-cure in a legitimate and genuine sense. The puppets of fashionable automatonism are prone to run to the doctor for every ache, real or suspected. To indulge them in their folly sometimes seems to the physician not without a certain worldly excuse. But if a higher ethical ruling is adhered to, duty will counsel encouragement of prophylaxis and hygiene; and among the means of forefending disease an energetic domination of will over the body is often the most vital and important.

Of Psorosperms and their Importance.—The *British Medical Journal* for June 6th says, in an editorial: The subject of psorosperms is at present exciting so much interest among pathologists in this country and in France that it will be well to review the present state of our knowledge of these organisms. Psorosperms, also called coccidia and pseudo-naviculæ, are classed by most zoologists among the protozoa or lowest class of animals, though Robin and a few other writers consider them algæ. Assuming that they are protozoa, it appears probable that they form a stage in the life history of the *Gregarinida*. Psorosperms usually occur massed together in cysts whose distribution in the animal kingdom is very wide, for they are found parasitic in connection with the alimentary canal and liver of the higher vertebrata, in nearly all the organs of fresh-water fish, and in many of the tissues of the *Lepidoptera*, *Orthoptera*, and arachnids. They are most readily seen, however, in the livers of ill-fed rabbits, where they occur as small whitish nodules. In man Dr. Delépine—who, in a recent paper read before the Pathological Society of London, showed how carefully he has studied the subject—says that psorospermial cysts have been described as occurring in the alimentary canal, in the liver, spleen, kidney, urinary bladder, lungs, pleura, heart muscle, skin, and hair.

The contents of the cysts are numerous spore-like bodies, round, oval, or spindle-like in shape, each consisting of a firm capsule, which may be bivalve, and which contains protoplasm at first homogeneous but subsequently becoming transformed into sickle-shaped bodies endowed with active amœboid movement. These sickle-shaped embryos possess the power of penetrating epithelial cells, and, when they have thus obtained a local habitation, of growing and becoming nucleated.

Considerable importance has been attached to a knowledge of the development of *Gregarinida* from the fact that when psorosperms infect *Lepidoptera* they may cause the death of their hosts, for it has been shown that they produce silk-worm disease.

It is only within the last few months, however, that M. Darier and Dr. Wickham in France, Mr. Bowlby and Mr. Jonathan Hutchinson, Jr., in this country, have pointed out the relationship which these organisms seem to bear to Paget's disease of the breast and to some other forms of skin affection. In Paget's disease the superficial layer of the epithelium covering the nipple is absent to a great extent, while the rete mucosum remains in patches, which are often vacuolated. The general appearance of the bodies in the tissues in this disease is shown in the drawing made by Mr. Jonathan Hutchinson, Jr., to illustrate Dr. O'Neill's report of this case. The "vacuoles" appear, by the light of recent observations, to be probably parasitic in their nature, since they are caused by psorosperms. If this hypothesis should prove correct, it will, of course, materially modify the treatment of the disease, for, instead of extirpating it with the knife as the surgeon has hitherto done, it will be treated by the application of strong antiseptic solutions in the manner recommended by Dr. Wickham. The acceptance of this view will also necessitate a modification of the pathology of Paget's disease, and we shall have to agree with Mr. Bowlby, who believes that all changes in the breast are secondary to those occurring in the nipple, and are not in any way the cause of the so-called eczema. It is at present a vexed question whether the cancerous growths in these cases are or are not directly due to any specific action on the part of the psorosperms, but, before this point can be settled with any degree of certainty, it is necessary to be able to cultivate the organisms. Messrs. Ballance and Shattock have lately declared that their experiments in this direction had been unsuccessful, while Dr. Delépine and Mr. D'Arcy Power announced that their work had yielded evidence of a positive result, though it was as yet too early to speak with any degree of certainty. The question, however, is one of great importance, and we shall watch with interest such further results as may be obtained.

On the Fifth Year of Medical Education.—At a meeting of the Section in State Medicine of the Royal Academy of Medicine in Ireland, held May 1, 1891, Dr. Falkiner read a paper on The Fifth Year of Medical Education. The author, referring to the resolutions of the Medica Council of 1889–'90, pointed out that, in order to be qualified for holding a poor-law appointment, six, and not five, years of study were required. In defense of the short period of study at present in vogue, Dr. Falkiner referred to the abuse of hospital and other charities, and also the state of degradation that some of the English general practitioners had fallen into. He urged that the expense of medical education was fully equivalent to the value received by the student, and objected to any increased outlay. He advocated the method adopted by the conjoint board of England, who in the minor subjects made the examination and not the certificate of the teacher the standard of their degrees, and finally spoke strongly of the pupils' residence in a general hospital with an out-patient department as the true foundation of their training.

Dr. Donnelly said that the part of Dr. Falkiner's paper on which he felt most qualified to speak was that which dealt with the recommendation that the fifth year be spent as a resident student or apprentice to a practitioner holding a public appointment. Being connected with the Whitworth and Hardwicke Hospitals, and also holding a dispensary appointment, he had special opportunities of seeing the wants of medical students. Some students who attended the poor-law dispensary to learn vaccination had accompanied him on his visits to the patients' homes, and he had been told that more genuine knowledge of the practice of medicine had been acquired than would have been attained at a hospital in the same time. The ward of a hospital where cases of disease were, so to speak, found cut and dry, was the most attractive field for junior students; but, after a time, the student ceased to take any interest in the more common ailments. It was very different when a senior student or junior practitioner attended the practice of a poor-law dispensary. He saw the case in its entirety, as he would be called upon to treat it in after-life, with all the social surroundings, etc., and hence would be better qualified to earn his bread and save his patient's life.

Dr. Newell said, with regard to the difficulty of obtaining residents for hospitals, that, judging from the experience of having resided for several years in a Dublin hospital, this was due to the student's ignorance of the real value of these appointments. This fact had been proved by the anxiety of surgical residents, which he had invariably observed, to obtain a medical residency, and *vice versa.*

Dr. R. Montgomery said that, after over twenty-five years as an examiner in the Apothecaries' Hall, he found that general answering had deteriorated. He thought that attendance under dispensary officers would be most advantageous. Students after leaving hospitals were unable to give that knowledge to minor ailments in the way of prescribing that was so essential. Pharmacy was the deficiency. Few men now were able to write prescriptions after the manner of Hudson and other learned presidents. The additional year was advantageous, as it would lessen the number of men going to the profession, and perhaps lessen the disgraceful practice that was carried on in England of 6*d.* and 1*s.* dispensaries.

Dr. J. W. Moore noticed that Dr. Falkiner considered the fifth year proposed by the General Medical Council to be in reality a sixth year, since a diploma in state medicine, with a year's curriculum, would in future be required in addition to the proposed five years' curriculum. But, in his opinion, the suggested reform by the General Medical Council would really reduce the curriculum to three years, the first year of medical study being practically spent in non-medical schools and non-medical courses, while the proposed fifth year would be practically spent by the candidate as "an unqualified assistant," that anomalous individual upon whom had descended the heaviest wrath of the General Medical Council in recent years. The speaker was strongly in favor of a prolonged period of genuine medical study, such as existed in Sweden and Norway; but he considered that a fifth year should be spent either in the wards of a clinical hospital or in a first-rate Continental school, such as that of Vienna, Berlin, or Paris.

Dr. R. K. Johnston thought the want of knowledge in the diagnosis and treatment of simple ailments on the part of senior students and junior practitioners arose through the students being anxious to see rare diseases, and this was due to the fact that the examiners expected them to have an accurate theoretical knowledge of rare diseases. In surgery the student was taught, for instance, the different methods of ligaturing arteries, operations on the foot, and amputations through the hip joint: but when would the ordinary practitioner be called on to ligature a large artery? Hospital physicians seldom lectured on the so-called simple ailments. Who, as a student, had ever heard a clinical lecture on biliousness?

Dr. Tobin said that two questions were raised by Dr. Falkiner's paper: 1. As to the advisability of a fifth year of study. 2. As to its disposal. If, as Dr. Falkiner had said, the profession was being overcrowded by men who in their struggles to exist undersold one another, then limit the number by raising the standard of qualification. As to the disposal of the fifth year, it should be given chiefly to clinical study. At present it was an undeniable fact that it was not possible for a student to attend hospital properly and pass his examination without missing a session.

The chairman (Dr. A. W. Foot) remarked on the importance of the question which Dr. Falkiner had brought under the notice of the Section, and the very interesting and varied opinions which had been elicited by the discussion. He said he professed to have some special knowledge of the various questions connected with medical education and examinations, having been a private teacher, a lecturer for several years, and the occupier of three separate chairs, a clinical physician, and an examiner. He also announced that he was the drafter of the conjoint scheme of examination for Ireland which had been adopted with comparatively slight modification by the colleges. With this scheme he disclaimed any effort on the part of those who drew up schemes for education and examination to have drafted these schemes with the special view to the benefit of professors and examiners, and he expressed surprise at those speakers who had taken such a view of the question. He admitted there were some selfish persons who would act in this manner if they had the power; but this power was denied to them. With respect to the great pressure on the students' time now complained of, he stated he used to go to hospital at eight o'clock, attend medical and arts lectures all day, and often dissection in the evening, and many of his fellow-students did the same. He was afraid students were not so industrious now as they were thirty years ago, or there would not be those complaints. With respect to the list of examinations and number of courses, he stated that practically these were the same as formerly, as some of the compulsory courses had been struck out and others inserted. The cost of medical education was, he believed, much less than it was fifty or sixty years ago, when it was common to pay £600 or £700 apprentice fees, and other expenses besides. He mentioned the case of a friend whose father paid over £2,000 for three sons as apprentices when money was of much more value than at present. The main feature of Dr. Falkiner's paper was on the best method of regulating study during the fifth year, which it was decided on all hands should be devoted to practical clinical work. Dr. Falkiner advocated attendance at a poor-law dispensary as a suitable way of obtaining instruction in practical medicine and surgery, and pointed out how the class of diseases treated at dispensaries could not be properly studied in clinical hospitals. He (the chairman) quite agreed that such institutions would be useful and desirable, and were at present difficult to obtain; but when it was remembered that there were some three fourths of the members of the profession engaged in general practice, and that of these a great number held public or *quasi*-public appointments, and that many of them were quite unfit to act as teachers, he could not see that, under the present circumstances, it was desirable to accept certificates of study from such a large class as must necessarily be included. We were sure of the instruction given at clinical hospitals, but could not be sure of what might be given at the dispensaries. The chairman thought, while the instruction at dispensaries should be encouraged as an additional acquirement, it should not be admitted as a substitute for any portion of hospital clinical instruction. As to the suggestion that general pharmacy was not sufficiently studied, he was of opinion that it got quite enough attention; it was no more the business of the medical practitioner to make tinctures and extracts than to make splints and to sharpen instruments. While it was desirable that he should be handy and able to do the latter in an emergency, it was also desirable that he should know how to do the former; but it was not his business. Pharmacy, like instrument-making, was a trade attached to the practice of medicine. In conclusion, he sympathized with Dr. Falkiner's proposals; but was unable to see how they could be carried out.

Dr. Falkiner held, in answer to the chairman's objection to practitioners' becoming teachers, that only those men who could teach would get pupils, as in the case of grinders and hospital teachers, and also differed with him as to the benefit of a knowledge of practical pharmacy to the practitioner, which Dr. Falkiner considered of extreme importance and value.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for July 3d:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.....	June 27.	1,515,301	803	70	..	..	..	..	..	7	24	18	20	5
Brooklyn, N. Y......	June 27.	806,342	465	31	..	..	..	..	..	3	9	12	6	6
Boston, Mass........	June 27.	448,477	150	29	..	..	..	..	..	1	..	4	1	1
Baltimore, Md... ...	June 27.	434,439	181	17	..	..	..	.	..	1	2	3	..	3
San Francisco, Cal...	June 20.	298,997	107	15	..	..	..	..	..	2	1	6	..	1
Cincinnati, Ohio.....	June 26.	296,908	133	10	..	..	..	..	..	3	1	6	2	....
Cleveland, Ohio	June 13.	261,343	81	5	..	..	..	..	..	..	..	4	..	....
Cleveland, Ohio	June 20.	251,343	87	10	..	..	..		..	2	..	4	..	1
Washington, D. C....	June 27.	230,392	170	17	..	..	..	..	..	1	..	5	1	2
Milwaukee, Wis......	June 27.	204,468	71	8	..	..	..	..	..	1	1	3	1	....
Minneapolis, Minn...	June 20.	164,738	48	....	..	..	..	..	..	2	..	1	..	....
Kansas City, Mo.....	June 13.	132,716	27	2	..	..	..	..	..	1	..	..	..	1
Kansas City, Mo.....	June 20.	132,716	23	2	..	.	..	..	..	..	..	..	..	1
Providence, R. I.....	June 27.	132,146	55	....	..	..	..	..	..	1	..	..	..	3
Toledo, Ohio.........	June 26.	81,434	24	....	..	..	..	..	..	..	..	1	..	....
Richmond, Va........	June 27.	81,388	52	....	..	..	..	..	..	1	..	2	..	....
Nashville, Tenn	June 27.	76,168	42	....	..	..	..	..	..	1	..	..	..	1
Fall River, Mass.....	June 27.	74,398	32	4	..	..	..	..	..	..	..	..	..	....
Portland, Me.........	June 27.	36,425	8	....	..	..	..	..	..	..	..	1	..	....
Binghamton, N. Y...	June 27.	35,005	12	4	..	..	..	..	..	1	..	..	..	....
Yonkers, N. Y.......	June 27.	32,033	12	1	..	..	..	..	..	..	..	1	..	....
Mobile, Ala...... ...	June 20.	31,076	21	5	..	..	..	..	..	..	..	..	..	....
Auburn, N. Y........	June 27.	25,858	7	....	..	..	..	..	..	..	..	..	..	....
San Diego, Cal.......	June 20.	16,159	5	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.......	June 20.	11,750	7	1	..	..	..	..	..	1	..	..	..	....
Tampa, Fla..........	June 20.	*10,000	6	1	..	..	..	..	..	..	..	..	1	....

* Estimated.

Carbolic-acid Spray in Lymphangeitis.—" Dr. E. Schwartz reports two cases of very severe lymphangeitis with diffuse cellulitis of the lower limbs, which he treated successfully by Verneuil's method of keeping the parts under prolonged and frequently repeated applications of carbolic spray. The following is the mode of procedure: The limb is placed on some impermeable material in such a manner that the spray can run easily off the part; the rest of the body and the bed are protected with mackintosh. One or two spray producers, filled with a watery solution of carbolic acid from 1 in 40 to 1 in 80, are then placed at a distance of about a yard from the part to be acted on, and allowed to play on it for an hour or an hour and a half two or three times a day. Signs of carbolic poisoning must be carefully looked for, and in any case the strength of the solution and the length and frequency of the applications must be diminished as the inflammation subsides. This treatment should be combined with free incision and with wet antiseptic dressings. The patient's strength must, of course, be supported by proper constitutional treatment. Used in this way, M. Schwartz says the method has an excellent effect, rapidly checking and modifying serious septic processes. He compares the action of the spray to that of a prolonged antiseptic bath, and he thinks it indicated in all cases in which continued local immersion is impracticable."—*British and Colonial Druggist.*

Phenacetine in Influenza.—"Dr. Henry, St. Mary Cray, Kent, recommends phenacetine during the first stage of influenza. Its action, he says, is prompt and striking, so that many patients declare they have derived more benefit from the 'powders' than from anything else. It rapidly cures the headache which is such a distressing symptom at first, helps to reduce the temperature, and mitigates, but does not entirely remove, the aching of the limbs, a few doses of salicylate of sodium effecting its final removal. He gives the phenacetine in five-grain powders, repeated every four hours, till the headache and other pains cease. He has used phenacetine largely in a variety of conditions, and considers it is unrivaled as an analgesic. It seldom fails, it is comparatively cheap, tasteless, and, as far as he can see from a tolerably extended experience of it, is totally free from the unpleasant after-effects—depression of heart, etc.—sometimes caused by antipyrine and other drugs of its class. Insolubility is its sole drawback."—*British and Colonial Druggist.*

Physiological Effect of Baths in Typhoid Fever.—" Dr. Kurkutoff, who has examined the physiological effects of baths administered to typhoid-fever patients in Professor Manassein's clinic in St. Petersburg, finds that such baths exert only a slight effect on the assimilation of the fatty constituents of foods, which, as in other fevers, is notably less than in healthy persons, and indeed varies directly with the gravity of the case; but there seems to be a good deal of difference as to the power of assimilation of fatty matter in different cases, probably depending on the functional disturbance in the bowel and on the amount of the individual peculiarities of the patient. In the graver cases the effect of the baths was to improve somewhat the assimilation of fat to the average extent of nearly four per cent. In slight cases, however, the effect was, apparently at least, to diminish the assimilation to the average extent of rather more than six per cent."—*Lancet.*

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

CLINICAL LECTURE
ON A CASE OF TABES DORSALIS,
WITH GASTRIC SYMPTOMS AND CHANGES IN THE BONES,

March 4, 1891.

By R. L. MacDONNELL, B. A., M. D.,
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PHYSICIAN TO THE MONTREAL GENERAL HOSPITAL.

By far the most interesting case at present under observation in the medical wards is that of Isabella T., aged forty-six. On her admission a few days ago, it was thought that she was the subject of hysterical vomiting, but further observation reveals the fact that the gastric disturbance is only one of the many symptoms which go to make the disease we call locomotor ataxia. Her history, as given in the hospital case-book, is as follows: I. T. was admitted into my wards on December 12, 1889—about fifteen months ago. She had the appearance of being older than fifty, but she says that menstruation ceased but a few months since. She was very anæmic on admission, and it was then noted that the pupils were of unequal size and fixed, and reacted to neither light nor accommodation. Her object in coming was to obtain relief from an attack of severe vomiting, with pain at the pit of the stomach, which was said to have begun three days previously and to have been very severe.

The diagnoses taken into consideration at this point in the history were alcoholic gastritis, gastric ulcer, gastric cancer, and hysterical vomiting.

At first we suspected alcohol as the cause of the disease, but there was no appearance of its habitual use either in the patient's face or in the appearance of her tongue, though her manner was decidedly strange and she was easily excited. We excluded organic disease of the stomach (1) from the fact that food seemed to have no influence over the pain or the vomiting. In the attacks of vomiting which were observed the act was in no way connected with the taking of food. When the act began the contents of the stomach came up at once, followed by mucus, and the attack ended in distressing retching. (2) There was never any hæmatemesis, or local tenderness, or palpable tumor. (3) The positive evidence of a neurotic origin for the vomiting was strong. She was during her stay in an excited state, constantly throwing herself about her bed, and in conversation she appeared to be most anxious to make the most of her illness.

Hysterical vomiting was more than suspected, and we felt more certain of this when the symptom ceased without treatment and she was able to return at once without any discomfort to ordinary diet. After five days in the wards the vomiting entirely ceased.

One other symptom of importance was present—viz., retention of urine—which lasted for the period during which the vomiting was at its worst. This symptom admits of two interpretations: 1. Retention of urine is common in the hysterical. 2. Retention is often the result of spinal injury and spinal disease, and the fact of its occurring at the time that the vomiting was at its height we can now look upon as possibly having some significance.

After a stay in hospital of twenty-one days, she returned to her situation as a cook, apparently quite well.

She next appeared at the hospital on the 14th of March, 1890, and remained for a week. There was again severe vomiting. She told us that during the two months she had been out she had not been able to do any work, but that she had not been ill and had not had to remain in bed at all. There were no stomach symptoms until a week ago, and her appetite was remarkably good. On the 11th of March—*i. e.*, three days before admission—she was seized with severe vomiting and brought up a large quantity of bile and mucus, and, later on in the day, a small quantity of blood was ejected, which, she said, was of a dark-brown color. She has never vomited blood since.

She was still very nervous and excitable and complained of pain. She had not lost weight during the preceding three months—a strong point against the diagnosis of structural disease in the stomach. We failed to find any other evidences of disease.

At the base of the right lung posteriorly there was dullness on percussion, the breath sounds were almost absent, and vocal resonance was diminished. Vomiting again entirely ceased in five days, and she was discharged on the seventh day.

At the time of these two admissions nervous vomiting, or what is called hysterical vomiting, constituted the diagnosis. Tabes dorsalis did not come into consideration at all. I remember being puzzled over the condition of the eyes, and a more careful examination of them might have led to a satisfactory solution of the problem.

The next appearance of our patient at the hospital door was on the 9th of February last, when she arrived with the same old symptoms—severe vomiting. I must do her the credit to say that her past history, as given by her afresh to Dr. Smith, my house physician, tallied closely with that previously on record, especially as regarded the attacks of vomiting and the one attack of hæmatemesis.

She was irritable and restless, and again her manner suggested hysteria. No evidence of gastric disease could be discovered. There was no retention of urine.

She was now quite unable to walk unaided. I confess that I fell in with the general opinion, and without due care regarded the case as a simple neurosis of the stomach.

There was no history of alcoholism or of syphilis.

After a few days' rest in bed without any special treatment the attacks passed off.

On the 13th of last month I decided to examine her before the class, and to discuss the diagnosis at length. In order to ascertain definitely whether any loss of weight had occurred, I asked the nurse to take her down to be weighed, but there was great difficulty in getting her to stand up. In getting her to this theatre I offered her my arm, thinking that I could humor her into walking, for I was then still under the impression that she could walk if she wished. She walked with me but a few paces and then sank on the floor quite suddenly, but immediately she picked herself up and attempted to go on. It was those few paces which led me to what I conceive to be the correct diagnosis. The feet were elevated in the manner peculiar to those affected with tabes dorsalis. An explanation of the other symptoms at once suggested itself, and we proceeded to look into the case, with a view of testing whether tabes could account for everything—with what success I leave you to judge.

Does any cause of locomotor ataxy exist? You are probably aware that the great cause of tabes dorsalis is syphilis—to what extent authors differ, but it is probably true that a syphilitic history exists in two thirds of all cases met with.

The condition of her eyes affords evidence of syphilis almost conclusive. Dr. J. J. Gardner, the assistant ophthalmic surgeon of this hospital, has interested himself greatly in the case, and this is his report which I read to you:

"I can not get a very clear history of failure of vision, as she never knew that the left eye was worse than the right. Thinks that both failed three years ago.

"R. V. = $\frac{20}{200}$, + 1·5 D. $\frac{20}{50}$.

"L. V. = fingers 1 foot, not improved.

"Right pupil = 5 to 5·5 mm.; no reaction to light or accommodation.

"Lens and other media clear. Optic disc looks like commencing gray degeneration. Vessels small.

"Left pupil 6 to 7 mm.; no reaction to light or accommodation.

"There is an absence of the sphincter of the iris, with an adhesion to the lens capsule which looks like an absorbed gumma. There are numerous opacities in the lens more toward the periphery. The ophthalmoscope shows most extensive old-standing chorioiditis more central, and also optic atrophy. The condition of the chorioid, and more especially that of the iris, would almost warrant one in saying that they were of syphilitic origin."

In most cases of tabes with a syphilitic history it has been remarked that other syphilitic manifestations are often absent, and that symptoms—such as marked skin affections, periosteal gummata, etc.—are generally absent. In women, too, syphilis is more likely to be followed by tabes dorsalis than in men.

Are the Symptoms of Tabes Dorsalis Present?—I am not here to lecture upon tabes dorsalis, but you must be reminded of the manifold symptoms which make up this extraordinary disease, which are commonly classed as motor, reflex, and sensory. There are two, which usually precede all the others; these are *pains* commonly spoken of as "lightning" pains, and absence of knee-jerk. So that a patient may have undoubted tabes dorsalis without presenting any of the striking symptoms with which other cases have rendered you quite familiar.

Motor Symptoms.—Is there inco-ordination? When she stands erect, with the feet together, the body sways from side to side. When the eyes are closed she falls. In walking about the arena she invariably moves from one support to another, and in the wards she touchès the ends of the beds as she goes up and down. The feet are not now lifted high, as they were the first day I noticed the defect. She can not turn about without falling. When assisted, even by a finger, she can walk fairly well, but her eyes are fixed on the ground and there is a tendency to put one foot in front of the other.

No inco-ordination of the upper extremities has been detected.

Sensory Symptoms.—All through the illness there has been some complaint of pain, generally in the epigastrium, and it was said to be very severe. At present she complains of pains in her legs shooting into her feet. I can not make up my mind as to whether these are really worthy of being designated true lightning pains. They may not be well developed, but we can not get over the fact that she has persistently complained of severe pain ever since she came under our notice. We must remember that the pains of tabes dorsalis are often indefinite, and, though lightning pains are characteristic and constitute the most common form of pain, yet the pains of tabes dorsalis are sometimes of a different character. Sometimes they may be burning, or they may show themselves by tenderness of the skin, or by tearing and gnawing sensations. Dull pains, like those of rheumatism, are not uncommon. Our patient has never suffered from girdle pains.

The disturbances of the sensation of the skin commonly present in tabes dorsalis are here noticed. Sensation in the skin of the legs is decidedly impaired. Transference of sensation is probably interfered with. A cold body applied to both legs and feet is said to feel like the prick of a needle, while the same body (iced water in a test tube) applied to the body produces a sensation of cold.

The plantar reflex is decidedly impaired, but not entirely abolished. The epigastric reflex is normal, the knee-jerk is entirely lost. You know that this is the earliest and most constant symptom of tabes.

Eye Symptoms.—In four fifths of the cases of true tabes the reflex action of the iris to light is lost (Gowers). In most of these the contraction on accommodation is preserved. Here there is reaction neither to light nor to accommodation. The pupils are large; the left pupil is of a somewhat irregular shape, and is much larger than the right. There is no paralysis of the external ocular muscles. The lesions described in Dr. Gardner's report point more to past syphilitic disease than to the changes brought about by locomotor ataxy.

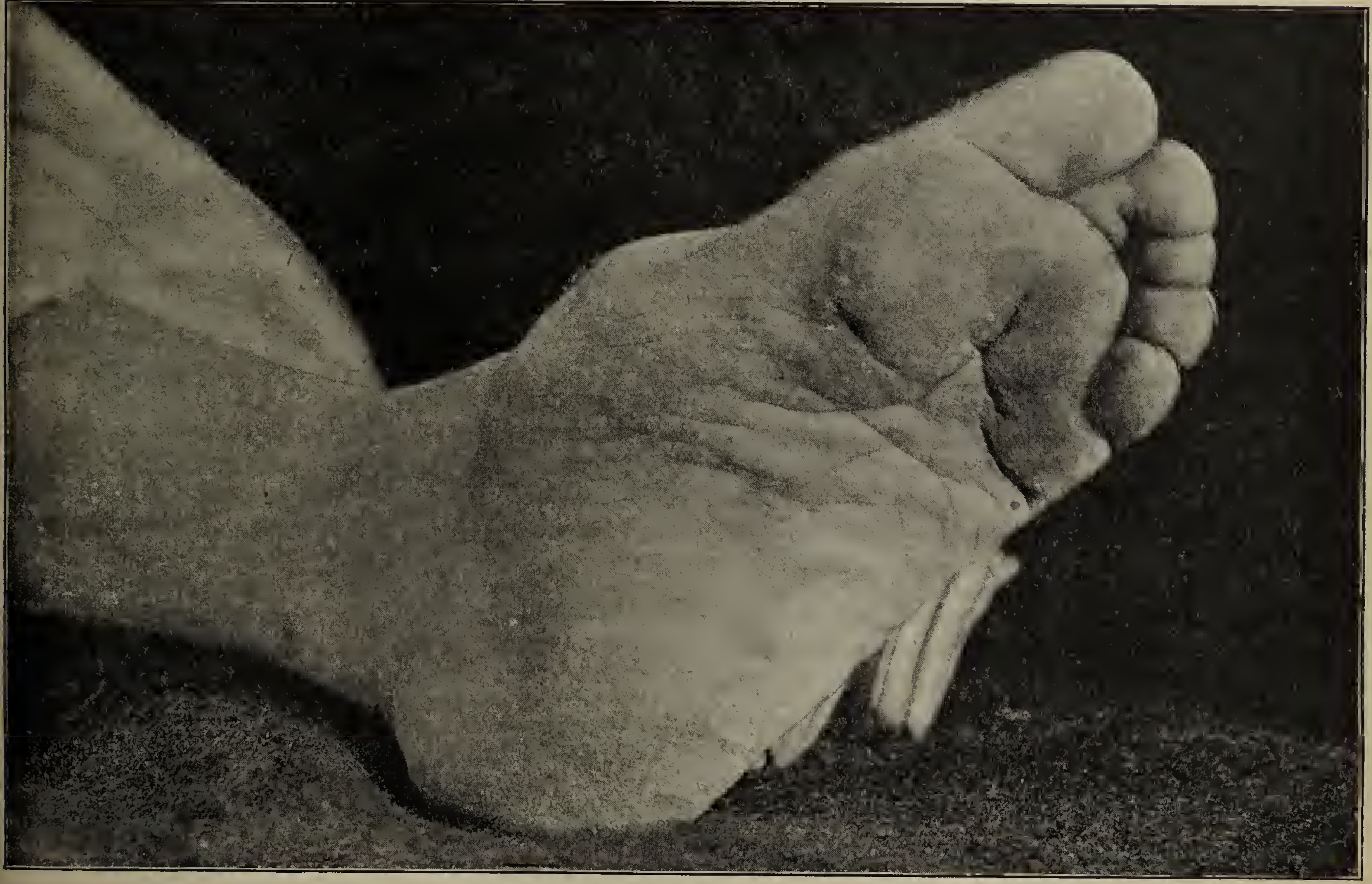
Action of the Sphincters.—In the previous attacks of vomiting, retention of urine was noted and was wrongly attributed to hysterical influences. It seems more reasonable, in the light of our present knowledge of the case, to ascribe this symptom to a spinal cause, since we know that in tabes there is frequently derangement of the functions of the bladder, one form of which is manifested by imperfect emptying of the organ. Absolute retention is sometimes present. It is significant that the retention coincided in point of time with the attacks of vomiting.

The action of the sphincter ani has always been well performed.

Vaso-motor and Trophic Disturbances.—Not the least interesting features of this case are the changes in the bones. Changes in nutrition of the joints and of bone itself have lately attracted attention. They are not common, but, inasmuch as many of them may escape notice, it is probable that they exist in many more cases than is commonly supposed. One of these changes is *brittleness of the bones*, so that fracture occurs after very slight violence, and not only is the bone brittle, but it unites with an extraordinary output of callus. Now, in this case there is evidence of a fracture in the middle of the left clavicle. Last June she fell down stairs and sustained this fracture. There is nothing very extraordinary about an old woman's tumbling down stairs and breaking her collar bone. Large numbers do that without having the fact adduced as evidence of the existence of locomotor ataxia. But the point of interest about this clavicle lies in the extraordinary amount of callus there now. You know that in fractures of the clavicle there is usually a certain quantity left after all the union is over, and, moreover, there is often riding of one end of the bone and always deformity to some degree, but here the callus measures two inches by two inches; and this in spite of the fact that the surgeon who was called in kept her two weeks on her back, which is an effectual method of treating a fractured collar bone. I might add that, although falling down stairs sounds seriously, yet the amount of violence must have been very trifling, for she tells us that she picked herself up again, resumed work, and did not perceive until the next day that something was wrong with her shoulder. No pain was at any time felt at the seat of fracture.

We have not perceived any of the changes in the joints commonly described. For a description of these I must refer you to treatises on the subject.

One of the phenomena connected with the bone changes of tabes dorsalis is the alteration of nutrition which follows even very slight injuries. Now, if you look closely at this woman's left foot you will see a most distinct elevation on its inner side at the articulation of the tarsus and the metatarsus. The enlargement involves the internal cuneiform bone, and not only forms an unsightly protuberance at the side of the foot, but widens in a marked degree the sole of the foot, especially when we look at it from below. The whole foot is an inch and a quarter wider than its fellow. The amount of bone thrown out is extraordinary, and by her account the injury from which it arises was very trivial. This inordinate activity of bone formation is characteristic of tabes dorsalis. You will find in Gowers's *Diseases of the Nervous System* a plate representing an enormous swelling of the parts about the elbow which followed a fall upon that joint that resulted in the fracture of the olecranon and the condyle.



You will also see in that valuable treatise a representation of a radius and ulna reproduced from Charcot's work, in which there is an excessive formation of callus after so-called "spontaneous" fracture of the ulna and radius.

The foot resembles that described by Féré as the "tabetic foot." I have not been able to put my hand upon his original description, which is in the *Revue de médecine* for 1884, but it appears from others who have quoted him that the so-called tabetic foot is produced by changes in the tarsal bones and articulations which may cause the foot to become flat, with a projection inward or backward of the tarso-metatarsal articulation and of the tarsal bones.

The bones of the hand have undergone a change which has had the effect of making the fingers unusually wide. This may not be the result of disease, but, taken along with the other more evident bone changes, it is not unworthy of notice.

When Dr. Stewart was examining the patient with me a few days ago he drew my attention to another osseous change—namely, an enlargement of the malar bone, which makes the left side of the face so much larger than the right that the asymmetry is perceptible at a little distance. There is no history of injury. Possibly some slight knock may have been received and forgotten. It is much more probable that there may have been trophic changes affecting the distribution of the fifth nerve. Since this case came under observation my eye was caught by an article reproduced in the *New York Medical Journal* from the *Edinburgh Medical Journal*, in which a form of overgrowth of the skull following the distribution of the fifth nerve is described by Mr. Thomson. He exhibited a skull to the members of the Medico-chirurgical Society of Edinburgh in which the bones of the left side were much hypertrophied, some to a greater extent than others. The zygoma and the malar bone were specially affected and presented a nodular and bossy thickening of their surfaces. These changes were evidently the result of a trophoneurosis affecting the fifth nerve. Unfortunately, no clinical history was given, but I should think it not improbable that a similar state of affairs might exist in the case we are now considering.

An interesting point in the history of these bone changes is the period of their occurrence. They were not there last year; we had then nothing but the vomiting, the retention of urine (if that can be regarded as a symptom), and, no doubt, the loss of knee-jerk, though it was not looked for, I am sorry to acknowledge. Now, we are at the stage of pronounced ataxia. The bone affections have intervened between the prodromic stage and the stage of actual inco-ordination, exactly as Charcot describes:

"In my opinion, the arthropathy in question is always an early phenomenon—that is, a phenomenon of the initial period of the spinal disease. To be more precise I will say, in the natural evolution of the disease, it occurs, generally, at all events, at an intermediate epoch between the period termed prodromic and the period of inco-ordination. If the affection appears at a late period it will be in the upper extremity—in shoulder, elbow, and wrist." *

Visceral Changes.—Could these attacks of vomiting we have witnessed be interpreted as being *gastric crises?* The stomach, undoubtedly, is the most common seat of such visceral manifestations of the disease. The attack is described (I take the words from Gowers) as consisting of severe pain, felt in the epigastrium and also in the back. The pain is accompanied by vomiting with or without nausea. The vomiting is often incessant, and is at first of food, then of clear liquid, which may be very abundant; ultimately bile is vomited and sometimes blood. You will remember that there was a history of blood in the vomit. I shall allude to hæmatemesis in gastric crisis later on in connection with another case. Such attacks last hours or days, then subside to recur in a few weeks, but during the interval the functions of the stomach are normally carried on. Now, this is exactly what we noticed in our case here. The attack ended abruptly and there was a sudden demand for solid food, of which she partook freely without any pain or discomfort.

The Diagnosis of Preataxic Tabes.—When a case of tabes dorsalis manifests itself first by gastric symptoms, the diagnosis is by no means readily made. Probably, if we had been more careful this time last year, the spinal disease might not have escaped notice, but one can hardly go through life suspecting every one whose stomach is out of order of being the subject of tabes. Even good Homer sometimes nods, and Charcot himself, to whom we are indebted for almost all our knowledge of these visceral manifestations, owns up to having failed on several occasions to recognize the true cause of the vomiting.

The following history serves as an additional illustration of the difficulties of diagnosticating the tabes in the preataxic stage:

John D., aged thirty-nine, came under my notice on the 28th of June, 1883, when, as assistant physician, I was in charge of the medical out-patients. He was a day laborer and had been very intemperate. Five weeks previously he had had an attack of vomiting of blood, having suffered from nausea and distress after food for some months. After the attack of hæmatemesis he had suffered from attacks of vomiting almost daily. Shortly after he had been entered on the books I saw him in one of these attacks, and I was impressed with its severity. There was then no diagnosis of tabes. The liver was made out to be small, and that fact, together with the history of alcoholism, gastric disturbance, hæmatemesis, and irregularity of the bowels, led me into a (probably) incorrect diagnosis of cirrhosis of the liver. Accordingly, regarding the acute gastric symptoms as being due to portal obstruction, I gave him a good dose of Epsom salts and prescribed an acid and quinine mixture, which, diagnosis or no diagnosis, so relieved him that he did not return to the hospital for three months. At the second visit he was suffering from the same symptoms, entered in my notes as "vomiting, abdominal pain, and weakness." While he was speaking to me in the out-patient room, Dr. Finley, who was then a house physician, drew my attention to the condition of his pupils, which were both contracted, but one smaller than the other. We then found the knee-jerk absent. There was no ataxia. He could stand all the usual tests, even to walking down stairs backward. We persuaded him to become an in-patient, and he remained in the wards from the 9th of October to the 1st of November, 1883. During that time no ataxia was discovered, but the patient complained of pain in the legs, which was starting in character, not very severe, worse at night, and at times entirely absent. He complained also of a pain of a constricting kind around the chest.

The pupils were sluggish to light, though quite active to accommodation. The optic nerves were nearly normal, but both a little pale and of somewhat turbid appearance. This condition was specially well marked in the left eye.

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* Charcot. *On Diseases of the Nervous System.* The New Sydenham Society, p. 50, 1881.

Now, I do not see how any other interpretation can be put upon these symptoms. The symptom on which most reliance can be placed is the loss of knee-jerk, about which one could scarcely be mistaken, and this symptom persisted throughout.

The alleged occurrence of hæmatemesis in both these cases is noteworthy. The vomiting of blood has been noted in cases of gastric crisis from tabes, so that possibly we may account for its presence in that way, but it must be borne in mind that a history of blood vomiting must be well supported before it can be accepted, and in both these cases the evidence, being uncorroborated, is very weak.

Original Communications.

IMMUNITY THROUGH DYNAMIC INHIBITION.

By WILLIAM MOOR, M. D.

In the whole field of medical science there is hardly a subject which has so obstinately surrounded itself with a dense cloud of mystery as has the phenomenon of immunity occurring after certain diseases — the self-protecting diseases against a renewed attack of the same kind, also after vaccination in regard to variola, and of the surprising natural immunity with which are endowed certain species of animals, some races of humanity, and single individuals of one race against various affections. Closely related to this subject is the question of the *modus operandi* of preventive inoculations. Pathological and natural immunity bearing such striking resemblance in their effects must have a similar causation. Explaining properly the one, we also may understand the other. Our first aim, therefore, will be to seek an understanding of the pathologically acquired immunity.

An explanation of a phenomenon depending on a pathological process involves, in the first place, the establishing of the cause of this pathological process. Above all, the question arises: Are the self-protecting diseases due to the action of bacteria? Are they microbian affections? For the greater part of them a microbian origin has not been proved as yet, still we are fully justified—nay, obliged—to consider this supposition a fact, and this for the following reason: We see that a group of phenomena belongs equally to variola, scarlatina, yellow fever, typhoid fever, etc. Neither of them can become chronic; they all reach in their evolution a climax and then gradually abate. We also see that their respective viruses are capable of being transmitted from one person to another by the way of the respiratory or digestive tract, or through direct blood-infection, or are liable to attack many persons at the same time in the same place, thus pointing to a common special cause. These diseases also present in common the phenomenon of giving immunity to those once having been afflicted by them to a subsequent attack of the same kind. Having such highly characteristic features in common, we must assume a similar pathogenic cause to underlie their evolution. This pathogenic cause must be either an organic living germ or an organic lifeless substance—an organic poison—or some inorganic mineral or chemical agent. If we can trace back the evolution of one of these maladies to either of the three kinds of viruses, we have to assume for the rest of them a similar causation. Eberth[*] in 1880 discovered a bacillus which he found only in tissues taken from individuals that died from typhoid fever. Even in affections accompanied by extensive intestinal ulcerations, but which were not cases of typh. abd., this bacillus could not be detected. Friedländer and Meyer[†] found the same bacillus out of twenty-two cases eighteen times; Gaffkey,[‡] out of twenty-four cases, twenty-two times. This latter investigator has also shown that these bacteria can readily be distinguished from the other species of micro-organisms by their characteristic growth upon the surface of sterilized, steamed potato; to the unaided eye wholly invisible moist cultures upon the surface of the potato entirely devoid of odor. Eugen Fraenkel and Simmonds[#] obtained twenty-five pure cultures of this bacillus from typh. abd. spleens out of twenty-nine cases. They also were able to obtain symptoms and pathological changes similar to those observed in typhoid fever of man by injecting cultures of this bacillus, especially into the aural vein and into the peritoneal cavity of rabbits. The important symptoms consisted in great weakness and noticeable tardiness in the movements, loss of appetite, with many of the animals diarrhœic discharges; death mostly during the first twenty-four hours. Those that survived the infection showed marked emaciation coming on rapidly. The pathological changes found at the dissection of the dead animals were highly typical and congruent: Fresh tumor of spleen, enlarged mesenteric glands, intense swelling of the intestinal follicles, especially of Peyer's patches, hæmorrhages from the mucous membrane of the upper small intestines, also parenchymatous swelling of the liver and the kidneys. The bacilli used for the experiments were refound in the organs of the animals experimented upon by the microscope and through cultures. It also was an important feature that animals who survived one infection became refractory to a new infection. Similar results as to symptoms and pathological changes by animal experiments were obtained by A. Fränkel,[‖] Karl Seitz,[^] Cygnaens,[◊] Vaughan and Novy,[↧] and others. The pathogenic relation of this germ to typhoid fever can therefore not be doubted, and its name — "*Bacillus typhi abdominalis*" — is well founded.

Not taking into account the contentions of different investigators[↕] of having discovered the special germs of other

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[*] Virchow's *Archiv*, 1880, Bd. lxxxi.

[†] W. Meyer, *Untersuchungen über den Bacillus des Abdominaltyphus*, Berlin, 1881. C. Friedländer, Notiz über Typhusbacillen, Du Bois-Reymond's *Archiv*, 1881.

[‡] *Mittheil. aus dem kaiserl. Gesundheitsamte*, Berlin, 1884.

[#] *Die ätiol. Bedeutung d. Typhusbacillus*, Hamburg u. Leipzig, 1886.

[‖] *Centralblatt f. Bact. u. Parasitenkunde*, 1887, Bd. i.

[^] *Bacteriologische Studien zur Typhus Aetiologie*, München, 1886.

[◊] Ziegler's *Beiträge zur Anat. u. allgem. Pathol.*, Bd. vii.

[↧] *Medical News*, 1888.

[↕] Domingos Freire, *Doctrine microbienne de la fièvre jaune, etc.* Rio de Janeiro, 1885 (yellow fever). Keber, Virchow's *Arch.*, xlii, 1868;

self-protecting infectious diseases, we reasonably can consider these latter as being caused by bacteria. Therefore the phenomenon of immunity, both of the natural and acquired one, must be in connection with some biological law pertaining on one side to the living organism, on the other side to these micro-organisms in common. Before bringing forward a new explanation of immunity, permit me to recapitulate shortly the other theories in vogue regarding this subject, and let us see whether they can be accepted as proper solutions of the immunity problem.

First we meet with the "exhaustion theory" (Pasteur[*]), according to which the infecting bacteria subtract from the body certain substances for their growth indispensable, and thus leave behind them a medium unfit for the thrift of a new invading germ colony of the same species. To this we have to remark: These, for the growth of bacteria, necessary substances having pre-existed in the tissues before the infection took place, must naturally be normal constituents, ingredients of the healthy body. But can we assume that the system, which is able to reproduce in a comparatively short time such great quantities of blood lost by hæmorrhage, should be incapable to restore to its household materials of which it has been deprived by germ life? Chauveau[†] raised an excellent argument against this "exhaustion theory." "Having practiced," says this eminent scientist, "comparative inoculations with small and great quantities of the infectious agent (*Bacillus anthracis*), both on Algerian sheep endowed with natural immunity and on such whose immunity had been strengthened by a single or by several preventive inoculations, I demonstrated that there was much more chance to produce the complete—*i. e.*, mortal—anthrax with inoculations which introduce into the organism at once a great number of infecting agents. How can we properly relate this fact to the exhaustion theory? How should an organism, having been deprived by previous inoculations of certain for the proliferation of anthrax bacilli necessary substances, be a more suitable soil for a new pullulation of this infecting agent if introduced in a large quantity, as when reduced to a minimum? If the poverty of the *terrain* is an obstacle to the culture, should this cause of sterility not manifest itself with the greater evidence, the more germs are given to this terrain to make them proliferate?" Chauveau, by numerous experiments, has proved that there is a direct proportion between the quantity of the introduced infecting agents and their power to break the immunity. Grawitz[‡] remarks that it would require to be explained how the system, providing sustenance for an enormous growth of virulent bacteria like the bacilli of anthrax, can be exhausted by the moderate vegetation of the same virus when attenuated. Bitter[#] found that even in the case where, after an experimental infection, an extensive growth and multiplication of the bacteria took place, no special diminution of nourishing substances could be observed. Blood taken from rabbits that perished from anthrax proved to be an equally good nutrient medium for the anthrax germ as the blood of normal rabbits. A drop of blood of such an infected animal would contain, at the moment of its being separated from the body, only short or medium long rods, but after an hour they would grow into filaments, and after eight to ten hours the whole blood drop would be interwoven into a dense texture of anthrax bacilli. Analogous results were obtained with the bacilli of swine, erysipelas, and *Bact. choleræ gallinarum.* Bitter has also observed that the anthrax bacilli showed the same luxuriant growth in anthrax-bouillon and anthrax-gelatin, without addition of peptone, as in analogous substances taken from normal rabbits, and that the addition of peptone in both cases did not alter the result. Furthermore, the blood and blood-serum of rabbits and of sheep made immune against anthrax proved to be an equally good nutrient soil for the bacilli of anthrax as the blood and blood-serum of animals susceptible to these germs and not rendered immune previously against their action. Another theory advanced by Chauveau[*] attributes the acquired immunity to substances resulting from the body-metabolism of the respective micro-organisms and held in solution hereafter by the previously infected body. To this we must object. Provided the tissues should withhold a very small quantity of ptomaines or other substances resulting from microbian body-metabolism, the presence of them could not be detrimental to a renewed growth of germs of the same species. Else how could the bacilli of tuberculosis proliferate in the lung tissues for a period extending often over many years? Or how could the germs of anthrax, septicæmia, etc., thrive in blood taken from animals that are at the height of the infection, whose blood is abounding already in the respective bacteria? Sirotinin,[†] by impregnating different culture soils with the products of different bacteria, has obtained the following results as to the influence that the products of bacterial body-metabolism exert upon the growth of the respective bacteria:

1. *Proteus vulgaris.* No difference in growth between control-plate and proteus-agar.

2. *Bacillus fluorescens liquefaciens.* Growth somewhat checked if old culture sterilized by heat; normal growth if old culture sterilized by filtration.

3. *Bacillus indicus ruber.* Growth good.

4. *Spirillum choleræ asiaticæ.* Growth good.

5. *Bacillus anthracis.* Growth good.

6. *Bacillus typhi abdominalis* (with addition of 1 per cent. of peptone and 0·1 per cent. of meat-extract). Growth good.

These data do not require a commentary.

We can raise still another objection to Chauveau's theory: It is very improbable that the tissues of animals or individuals enjoying a natural immunity against certain diseases contain a bactericidal poison. How could it be credible that, for instance, among the ovine race the organism of the Algerian sheep alone should produce a poison detrimental to invading anthrax bacilli and thus protect this

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Chauveau, *Comptes rendus*, lxvi and lxvii (variola). Jamieson and Edington, *Brit. Med. Jour.*, June 2, 1887 (scarlatina).

[*] *Comptes rendus*, 1880, vol. xc.

[†] *Ibid.*, vol. xci, 18 Oct.

[‡] Dubreuille, *Les immunités morbides.*

[#] *Zeitschrift f. Hyg.*, Bd. iv.

[*] *Comptes rendus*, vol. xc.

[†] *Zeitschrift f. Hyg.*, Bd. iv.

animal against the action of these germs, whereas the European sheep should be incapable of producing such a bactericidal substance? Adopting Chauveau's views on this subject, *it would become our first duty to quit with the practice of vaccination.* A healthy offspring of healthy parents represents the state of normal vitality. An addition to its organism of substances capable to annihilate invading virulent germs can not be innocuous; the more so if we consider that these foreign substances would have to remain for a long time in the system of the individual to render him immune against variola. A third theory refers the cause of immunity to a reactive change that takes place in the special organ which serves as nutrient medium for pathogenic germs. It is evident that such a supposition can not hold for the immunity that follows general infectious diseases, in which the seat of infection is the whole organism. A fourth theory pertaining to this question has been advanced by Metschnikoff in connection with his teachings of phagocytosis,[*] and has found many ardent adherents. According to this investigator, the acquired immunity is due to an increased capability of an intracellular digestion on the part of the phagocytes in regard to the different pathogenic bacteria. In other words, the leucocytes, having once digested certain bacteria, acquire an increased appetite and digestive power for the same bacteria, which behavior on the part of the leucocytes would remind us of some carnivora, which, having once tasted flesh of man, seem to get a decided preference for this noble food. That leucocytes do not play such an important rôle in annihilating invading bacteria as has been ascribed to them by Metschnikoff, many investigators have proved experimentally.

Nuttall,[†] repeating Metschnikoff's experiments on frogs, also his vaccination experiments on rabbits' ears with virulent and attenuated anthrax, and through microscopic observations upon the warm stage, has seen numerous bacteria degenerate and die outside the leucocytes without coming even in contact with them. Christmas-Dirkinck-Holmfeld[‡] equally has observed that the greater part of bacteria degenerate outside the white cells. Grohmann,[#] Nuttall,[‖] Buchner,[^] Nissen,[◊] Prudden,[↨] and Lubarsch[↕] have experimentally established the fact that blood-serum free from cells—*ergo*, without the interposition of leucocytes—has remarkable bactericidal properties. Metschnikoff's contention, therefore, that the germicidal action of blood is due to the phagocytes can not be upheld. It is much more probable that white cells digest bacteria already devoid of vitality.

Having thus found that none of the existing theories can account for the wonderful phenomenon of natural and pathologically acquired immunity, we have to follow another course of reasoning, which, perhaps, may lead us to the much-desired solution of this mystery. Considering the self-protecting diseases as microbian affections, the key to the solution of this question must undoubtedly be searched in the reciprocity of influence that germs exert upon the animal organism, and *vice versa.* But in what relation to each other are organism and bacteria? Why is it that at times the animal or human organism, or a part of it, serves as a favorable nutrient medium for bacteria and at others not? Are tissues that promote the growth of germs chemically of a different composition than tissues that check microbian life? Taking into consideration what a great variety of substances can serve as nutrient soil to bacteria outside the living organism—gelatin, bouillon, agar-agar, blood-serum, potato, etc.—it is at once obvious that the thrift of the different pathogenic micro-organisms in different animal species and human races does not depend on the chemical constitution of these media. The blood and tissues of the Algerian sheep do not differ so widely from those of their European kindred in their substantial composition as to form an unsuitable soil for anthrax bacilli in the one case and a favorable feeding ground in the other. Are negroes materially chemically of a constitution different from that of white people, so as to be an unfit medium for the germs of yellow fever? Or do the bodies of white individuals, endowed with natural immunity against small-pox, scarlatina, etc., contain bactericidal substances of which persons prone to those diseases are devoid? A striking proof for my statement that the thrift of bacteria in the different organisms does not depend on their finding in them a chemically favorable nutrient medium offers the remarkable behavior of the frog toward the anthrax bacilli. Under normal conditions—*i. e.*, under a normal temperature—he proves himself to be refractory to invading anthrax bacilli; but, if the temperature of his body is raised artificially to 38° C., he will succumb to an intensive anthrax infection, if inoculated with this virus. Can we assume that the frog at normal temperature differs in his chemical composition from the frog at 38° C.? Nuttall, Buchner, and others, as mentioned already, by a series of highly interesting and important experiments, have proved that extravascular blood and blood-serum free from cells have remarkable germ-killing properties, but that this germicidal property is lost when the blood or serum free from cells is heated to 55° C. for an hour. No morphological or chemical difference could be noticed between the bactericidal blood or serum and the one rendered a good culture medium by being heated up to 55° C. Both showed the same physical properties, both reacted in the same way to chemical agents, consequently they did not differ from each other in an isomeric sense of the word, and still they behaved so contrastingly in regard to bacteria! Considering the aforesaid, we come to the following conclusion:

The different animal organisms, whether endowed with natural or acquired immunity or whether susceptible to certain microbian affections, are chemically equally good nutrient media for bacteria.

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[*] *Arbeiten aus dem zoolog. Inst. der Univers. Wien*, 1881, Bd. v. Virchow's *Archiv*, Bd. xcvi, xcvii, cvii, cix. *Biologisches Centralblatt*, 1883–1884.

[†] *Zeitschrift f. Hyg.*, Bd. iv.

[‡] *Fortschritte der Medizin*, 1887, Bd. v.

[#] *Ueber die Einwirkung des zellenfreien Blutplasmas auf einige pflanzliche Mikroorganismen*, Dorpat, 1884.

[‖] *Zeitschr. f. Hyg.*, Bd. iv.

[^] *Centralblatt f. Bact. u. Parasitenkunde*, 1889.

[◊] *Zeitschr. f. Hyg.*, Bd. vi.

[↨] *Med. Rec.*, 1890, Jan. 25.

[↕] *Centralblatt f. Bact. u. Parasitenkunde*, 1889.

Thus recognizing the impracticability and impossibility of tracing back the causes of immunity to permanent chemical conditions or temporary material changes in the animal economy, we necessarily have to search in another field of physiological phenomena in order to reach our purpose. Physiological phenomena can grossly be grouped into two categories: 1. Chemical. 2. Dynamical.

If the chemico-physiological processes do not afford us the explanation of certain facts observed, we must endeavor to discover the law that governs these manifestations in the dynamo-physiological group of vital phenomena. These latter are either macrocosmical or microcosmical. In the question that occupies us now the macrocosmical dynamic functions of the animal system we can exclude at once, for it is manifest that circulation, respiration, etc., taken as gross physiological functions, can not play any rôle in the determination of immunity. There remain the dynamic phenomena of the microcosmus. Life manifests itself in motion. What is the chief motion of the microcosmus?

The Molecular Vibration peculiar to Vitality.—One of the axioms of the teachings of physics is, that the ultimate particles of which matter is made up are capable of definite motions, varying in character and velocity. A motion of a particular kind communicated to the ether can give rise to the phenomena of heat; a motion of the same kind but of greater velocity produces light. Is it not just as probable that the molecules of the animal system possess a motion that is exclusively peculiar to them? Before proceeding further on the subject, I beg the kind reader to remember that, for the purpose of elucidating certain phenomena, it is allowable to make a supposition. Who ever has experimentally demonstrated the existence of ether? And yet we are obliged to take its presence in the universe and in all matter for granted! I hope to have proved it logically that it is only the dynamic condition of the microcosmus that determines the quality of the animal tissues as to their affording a good or unfavorable nutrient soil for micro-organisms. But as I am unable at the present state of science to imagine another dynamic condition of the microcosmus than the molecular vibration, it remains to be seen what we can gain in regard to the explanation of the phenomena that form our subject by attaching our chain of reasoning to an idea more fixed and stable—to the idea of molecular vibration. Starting from these prælecta, I set it down as a general law in reference to the reciprocity of influence that exists between bacteria and animal organism: *The normal molecular vibration of the animal tissues checks the growth and multiplication of bacteria. Bacteria that enter the animal system can only proliferate if they are capable of changing the normal molecular vibration to one that corresponds to their own biological properties.* Whether the normal dynamical state of the organism has a direct annihilating, paralyzing effect upon micro-organisms, or whether these latter can not assimilate the elements necessary for their growth from molecules being in a certain dynamical condition, has no bearing on our fundamental statement, for even assuming that bacteria can assimilate food only from tissues of a changed dynamical condition, the altered molecular vibration is the primary cause of their growth, whereas the question of nutrition is secondary to the changed dynamical relations of the atoms *inter se* in a given molecule. That a molecule of the animal organism should be capable of undergoing different dynamical changes is quite intelligible when we consider that, for instance, a molecule of albumin consists of atoms of carbon, hydrogen, oxygen, nitrogen, and sulphur. We see at once that such a molecule may exist under various dynamic conditions. For instance, the carbon atoms may vibrate with a certain velocity and character different from the vibration of the H, O, N, S atoms. The C and S atoms jointly may have the same dynamic state, differing from the H, O, N atoms, etc. Even considering the albumin molecule as consisting only of single atoms of each C, H, O, N, S, we may have five different vibrations if one of these atoms differs in vibration from the other four; furthermore, ten other vibratory conditions if two atoms out of the five differ in character and velocity of vibrations from the others, according to the formula

$$\text{Co.}\ \frac{n}{r} = \frac{n\,(n-1)\ .\ .\ .\ (n-r+1)}{r}.$$

In this case $\text{Co.}\ \frac{5}{2} = \frac{5 \cdot 4}{2} = 10$.

Taking into account that a molecule of albumin contains $C_{72}H_{112}O_{22}N_{18}S$ (provisional formula of Lieberkühn), we may understand that such a molecule can undergo an infinite number of different dynamic conditions. That microbian life within the animal or human system depends chiefly on an altered dynamical state of the organism or a part of it, is plainly manifested by numerous experimental and clinical facts. I shall cite but a few of them and refer the seeker after more elaborate data to the current medical literature.

Rosenbach[*] reports a number of interesting experiments, as a result of which he was able to ascertain that acute suppurative osteomyelitis could only be produced by injecting pus into the circulation of animals whose osteomedullary tissue had been injured either previously to the infection or following this latter.

Bonomé[†] tried to set up gangrene of the lungs in rabbits by injection of pure cultures of *Staphylococcus pyogenes aureus* and *Staphylococcus pyogenes albus*, but failed to do so. He succeeded, however, by taking pieces of the pith of the elder tree, breaking them up into very fine fragments with the cultivation of the pyogenic organisms, and then injecting this mixture into the jugular vein. The result was numerous deposits of cocci in the lungs, leading to coagulation necrosis of large tracts of these organs, and, as a consequence, to gangrene.

Cornil[‡] has no doubt that a septic—*i. e.*, bacterial—nephritis could readily be produced by first causing a simple nephritis, say by administering cantharides, and then injecting the pyogenic germs into the circulation of the animal. He also feels positive that a bacterial nephritis could artificially be produced by ligating for several hours the renal arteries and then injecting into the circulation of the animal thus prepared pyogenic germs. Cadéac and Malet[#]

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[*] *Deutsche Zeitschrift f. Chirurgie*, 1878, p. 369.

[†] *Deutsche med. Wochenschrift*, 1886.

[‡] Cornil et Babes. *Les bactéries, etc.* Paris, 1886.

[#] *Revue de médecine*, 1887, p. 337.

found that injections with the virus of acute glanders into the trachea of asses, in whom the mucous membranes of the respiratory organs were in good state, generally were not followed by an attack of glanders, whereas this disease always could be produced, when the mucous membrane of the air-passages became altered, either by a lesion which the trocar may inflict upon the tracheal mucous membrane at the moment of its introduction, or by artificially producing a catarrh through inhalations of bromine vapor.

Watson Cheyne* found no micro-organisms in the blood of animals that were in a good state of health; but if the vitality of the animal was depressed by administering large doses of phosphorus for some time, organisms could be found at times in the blood and tissues of the body.

These experiments prove that the normal dynamic state of the tissues checks bacterial life; but they also prove that tissues can become altered in their molecular dynamic condition only when they are in a state of lowered or impaired vitality; in this case the invading bacteria are able to change the normal molecular vibration into one corresponding to their own requirements. A surgical phenomenon which of late has attracted considerable attention and could not be explained satisfactorily by any hypothesis set forward can easily be understood with the aid of our theory. I refer to those astonishing cures of tubercular peritonitis that have been achieved by a simple abdominal incision, made in most cases in consequence of an error in diagnosis or for the sake of exploration. pencer Wells,† as early as 1862, has observed this surprising phenomenon. After him especially Naumann,‡ Koenig,# Homans,‖ Billroth,△ and Fehling◊ have reported similar cases. Dr. P. Syms‡ recently has given an interesting account of a cure of tubercular peritonitis by laparotomy.

Most of the above-mentioned operators agree that the favorable results obtained are the direct consequence of the laparotomy, and are neither due to the antiseptic cleansing of the peritoneal cavity nor to the withdrawal of ascitic fluid, for in many cases patients did better without disinfection, and tapping the ascitic sac without abdominal incision did not effect any improvement in patients' condition. The cure or marked improvement observed in these cases of peritonitis tuberculosa must then be due exclusively to the laparotomy itself. But how to account for this fact? No satisfactory explanation has as yet been given for this pathological mystery. I think my principal conclusion—the normal molecular vibration of the animal tissues checks the growth and multiplication of bacteria—can afford a simple and satisfactory explanation of the cure of tubercular peritonitis by laparotomy. The act of repairing the incision wound sets up an intensified molecular vibration, though normal in character, which communicates itself to the neighboring diseased tissues, and thus checks the vitality of the tubercle bacilli. It seems, therefore, advisable not to stop in these cases at the abdominal incision, but to resort also to a peritoneal incision, for it is obvious that in this latter case the reparative processes will strike more directly the tubercle bacilli than under the abdominal incision alone. A further proof for my dynamical theory is the frequently observed fact that slight external injuries are readily followed by tubercular inflammation, whereas extensive injuries resisted a colonization of tubercle bacilli. Adapting our dynamical theory to this different behavior of analogous tissues toward identical germs, we say that in the first case the bacilli easily can transform the existing dynamic condition into one that is in accordance with their own requirements, the process of repair not being able to counterbalance the impaired dynamic resistance of the tissues, whereas in the case of extensive injuries the reparative process induces very intensified normal molecular vibration, and thus sets a barrier to bacterial life.

We have thus seen that under normal dynamic conditions bacteria can not thrive in human or animal organisms or tissues; moreover, that the molecules of animal tissues are endowed with a certain power of resisting the primary action of bacteria, which tends to change the existing normal dynamic state into one corresponding to their biological properties. In other words, *the molecules of the animal or human system are provided with a dynamic inhibitory power.*

Our next purpose is to show what connection may possibly exist between this dynamic inhibitory power of the molecules and the natural and acquired immunity. Before entering this subject I have to make some preliminary remarks, to which I beg the kind readers to pay some attention.

Micro-organisms that invade the human system, whether producing local or general affections, give rise either to a self-limited disease not exceeding a certain time, or may cause maladies of indefinite duration—chronic affections. There exists a chronic phthisis, chronic gonorrhœa, etc., but we do not hear of chronic pneumonia, typhoid fever, smallpox, diphtheria, etc. We see at once that bacteria widely differ as to the duration of the affection that they give rise to. What symptoms in common offer us the affections of a limited duration? We know that they present a gradual evolution from an incipient stage up to a climax, and then gradually abate—or else the patient succumbs to the effects of germ life or to the consequences of the disease. The question arises, Is this limited duration of some diseases due simply to an attenuation of the germs in the same way as we observe that some cultures of long standing lose much of their virulence? It is considered an established fact that bodies of subjects that died of some infectious disease retain the virus in a condition to communicate the disease for a long period. Variola has been contracted in the dissecting-room from subjects dead with the disease, and cases are on record in which variola cadavers retained their infective virulence even for years. Persons have been attacked by scarlatina on returning to houses in which cases of this disease have occurred weeks or months previously.

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* *Brit. Med. Jour.*, March 3, 1888.

† *Wiener med. Wochenschr.*, 1887, No. 13.

‡ Fall af tuberc. perit. behandlade med laparotomy. *Hygiea*, 1885.

# Ueber diffuse Tuberculose, etc. *Ctrlbl. f. Chirurgie*, 1884, No. 6.

‖ *Boston Med. and Surg. Jour.*, 1885.

△ *Wiener med. Wochenschr.*, 1887, No. 13.

◊ *Correspondenzbl. f. schweizer Aerzte*, 1887, No. 20.

‡ *New York Med. Jour.*, Feb. 2, 1891.

Experience has shown that the bacilli of typhus abdominalis retain their vitality and capacity of reproduction in the dejections of typhoid-fever patients for months, and even for years. During an epidemic of typhoid fever in a little village, observed by Uffelmann,[*] the first individuals attacked by this disease were three workingmen who, six days before their illness became manifest, had removed the remainders of a dung-hill containing among others the excrementa of typhoid-fever patients; these dejections had been brought to the dung-hill a year previous to the epidemic in question. Similar cases are reported by Finkler,[†] also by Goetl,[‡] and others.

Considering the aforesaid, there can be no doubt that the bacteria which produce diseases of a limited duration—which, in other words, can not thrive in the living human body beyond a certain time—are able to live outside the living human system for an indefinite time. The next question arising is, Why can not these germs exist in the human body beyond a certain time if their existence is not interfered with for a long period in dead tissues? Here we have to come back to our principal statement: Normal molecular vibration checks the growth of bacteria. In order to exist and to multiply, this normal molecular vibration has to become changed through an intrinsic power of the bacteria into a dynamic condition of a different character, according to the nature of the respective germs. This once having been effected, the invading germ colony will grow and multiply. Now, germs giving rise to diseases of limited duration possess manifestly a peculiar intrinsic power of their own to such an effect as to cause a gradually ascending pitch of the characteristic molecular vibration brought on by them until a vibratory climax is reached. This vibratory climax has evidently the same effect upon the invading bacteria as has the normal dynamic condition of the tissues—*i. e., it checks the growth of the bacteria.* This idea seems to be very complicated, but is in fact very simple. The germs, in order to proliferate, must be capable of changing the character of the normal molecular vibration. This vibration, differing *in character* from the normal, in consequence of an intrinsic stimulant power of the bacteria, will rise to a certain pitch, which in turn sets a barrier to the further development of the parasites. In another class of diseases—in those of unlimited duration—the pathogenic bacteria show an entirely different behavior. After having once altered the dynamic condition of the tissues into one that corresponds to their own biological requirements, *they do not bring on a rise in the pitch of the molecular vibrations, but leave the tissues in the same dynamic condition as they have been from the moment of their invasion.* Let us take phthisis for an illustration. The moment that the dynamic inhibition of the lung tissues has become lessened to a degree that the bacilli tuberculosis are able to change the existing dynamic condition into one that corresponds to their postulata, these bacilli will grow and multiply and thus progressively will destroy lung tissues. *The dynamic condition of the lung tissues throughout the disease remains the same.* There are no stages of phthisis, properly speaking, as we can speak of stages in pneumonia, small-pox, etc. At the moment that the patient dies after many years' suffering from asthenia or some intercurrent disease, no matter to what degree the lung is destroyed, no matter how many and how extensive cavities have been formed, *the dynamic state of the lung is the same as it was at the time of the first settlement of the tubercle bacilli.* I go even a step further and say that tuberculosis never becomes a general disease, no matter how many tuberculous foci should exist throughout the body. *A general miliary tuberculosis—paradox as it may seem—is but a "multiple local affection,"* as the organism, taken as a whole, does not undergo the dynamic changes characteristic of tubercular infection.

Viewing these two widely differing dynamical effects that bacteria produce in the human system, I propose to classify the pathogenic micro-organisms with reference to the dynamic changes that they give rise to in the human organism through their intrinsic power in two principal groups:

I. *Homodynamic Bacteria.*—Those that produce affections in the course of which the once altered molecular dynamic state of the organism or of a part of it remains the same. The affections caused by these bacteria are usually of an unlimited duration. But sometimes they run a short course; this is due to the virulence and the rapid growth and multiplication of the respective germs.

II. *Acrodynamic*[*] *Bacteria.*—Those that produce affections in the course of which the once altered molecular dynamic state of the organism, or of a part of it, undergoes a gradual evolution until a dynamical climax is reached, whereupon this changed dynamical condition gradually abates till the normal dynamic condition is restored. These affections are of a limited duration.

Among the homodynamic bacteria we shall have to enumerate:

Streptococcus pyogenes, *Staphylococcus pyogenes aureus*, *albus*, *citreus*—and the other pyogenic germs, *gonococcus*, *Bacillus tuberculosis*, *Bacillus anthracis*, *Bacillus septicæmiæ* — in man and in animals, *Bacillus lepræ*, *Bacillus mallei*.

The acrodynamic bacteria are to be subdivided into two groups:

a. Local.

b. General.

To the local acrodynamic bacteria I consider the following germs to belong: *Streptococcus erysipelatosus*, *Pneumococcus Friedländer*, the germs of diphtheria, the germs of influenza, *Spirillum choleræ*, the germs of sporadic and epidemic dysentery.

General acrodynamic bacteria are the following: *Spirochæte Obermeieri*, *Bacillus typhi abdominalis*, the germs of typhus, the germs of yellow fever, the germs of variola, the germs of scarlatina, the germs of rubeola, the germs of cerebro-spinal meningitis, the germs of mumps, the germs of pertussis.

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[*] *Ctrlbl. für Bacteriologie.* 1889, Bd. v.

[†] *Bericht über den VI. Congress für innere Medizin.*

[‡] *Ibid.*

[*] ἄκρος, at the summit, extremity, at the highest pitch.

If the bacillus, discovered in 1884 by Lustgarten,* in Weigert's laboratory, is really the specific virus of syphilis, this bacillus undoubtedly belongs to the general acrodynamic bacteria, though giving rise to a remarkably slow dynamic evolution of the organisms, this latter remaining unusually long in the different states that correspond to the different degrees of the dynamic evolution of syphilis.

I presently shall give the proper reasons for enumerating certain parasites under the heading of local acrodynamic bacteria, instead of considering them as general acrodynamic germs. It will be noticed that only the microbes of those diseases that confer immunity were classed among the general acrodynamic bacteria, whereas the germs of the non-protecting, or for a short time protecting, affections are called "local." At this point I have to remark that immunity can be of a twofold character: 1. Genuine, long-lasting immunity; and 2, immunity of a short duration. Asiatic cholera does not give protection against another attack beyond one year, whereas the immunity resulting from typhoid fever, small-pox, etc., is genuine, long-lasting.

I dare to state that *only the genuine immunity-conferring diseases are due to general acrodynamic bacteria, and, vice versa, that only general acrodynamic bacteria can afford lasting immunity*, so that a disease which does not protect hereafter against another attack of the same kind is *eo ipso* not due to general acrodynamic micro-organisms, but can only result either from local acrodynamic or from homodynamic bacteria; in other words, *that the conferring or non-conferring of genuine immunity is a criterion of the dynamic properties of the respective pathogenic germs.* Here I have reached the point to explain the phenomenon of genuine, lasting immunity. Referring to my principal statement, the germs on entering the human system must be capable of changing the existing molecular vibration into one of a different character. The genuine immunity being a property of the whole organism, the cause which produces it must naturally affect every organic molecule of the system. The germs, therefore, which give rise to a self-protecting disease on invading the human body must be able to overcome the dynamic inhibitory power of the whole organism of each organic molecule, just in the same way as the local dynamic inhibition of a given part of the body must be overcome by invading germs that this special part should undergo bacterio-pathologic changes. The molecular vibration of *the whole organism*, once being changed, will rise gradually to a highest pitch, to a climax which sets an end to further bacterial proliferation, and then gradually will abate until the normal dynamic conditions are restored and the system anew regains its dynamic inhibitory power. *And it is just this regain of the formerly lost power which constitutes the cause of immunity.* I shall give a rough but well-illustrating comparison. Suppose we lift a heavy weight from a soft soil and throw it high up. The weight on falling back to the ground will burrow itself deep into the soft soil, and thus it would require a greater amount of force to lift it anew than the force that had been used in lifting it the first time. In our case the invading bacteria represent the lifting force; the weight is the dynamic inhibitory power of the system, which, having taken possession anew of its function, will offer a greater resistance to a renewed attempt to overcome it. It is obvious that this increased dynamic inhibitory power will exert its influence only against dynamic factors of the same kind that overcame it once and in regard to which it had regained its functions, whereas to molecular dynamic changes of a different character it would stand in the same relation as it stood to those agents that were able to annihilate its influence before they could accomplish this. It is therefore a logical necessity to assume that the organic molecules of the whole system can undergo as many dynamic variations as there are self-protecting, immunity-affording diseases. The local bacterial affections also have their own characteristic dynamic conditions. This is quite intelligible, as I have mentioned already, when we consider that, for instance, an albumin molecule consists of $C_{72}H_{112}O_{22}N_{18}S$, and that even assuming an albumin molecule being composed of but one atom of each CHONS, such a molecule could undergo sixteen different dynamical conditions. To each species of bacteria corresponds another dynamic condition of the organism or a part of it. If they are able to annihilate the dynamic inhibitory power of the system, or a part of it, and to bring on in the molecules the change of vibration, then they will exert their influence on the invaded tissues, or on the whole body, and thus cause the different diseases according to their nature.

Experience has proved that the different races of humanity, also single individuals of one race and the different animal species, vary as to their dynamic inhibitory power. Those individuals, for instance, that are insusceptible to small-pox possess a strongly developed dynamic inhibitory power with respect to the germs of small-pox. Negroes are endowed with the same faculty with respect to the microbes of yellow fever.

Algerian sheep have a remarkable dynamic inhibitory power in regard to anthrax bacilli, which is the more astonishing when we consider that their European kindred so easily succumb to the influence of these most virulent germs. *Natural and acquired immunity represent in fact the same condition of the system. The one is the manifestation of a congenital, the other the result of a pathologically acquired, strong dynamic inhibitory power.* It is only by a dynamic conception of the bacterial diseases that we can understand why a comparatively slight affection—for instance, a mild attack of scarlatina or the distemper resulting from vaccination—should afford genuine immunity. An infectious, self-protecting or not self-protecting disease, whether it runs a mild or a severe course, is essentially as to its dynamic phases the same. The temperature is not dependent on the pitch of the molecular vibration, but only on its intensity and on the celerity of the body metabolism brought on reflexly by the toxical and dynamical influence exerted upon the body by the pathogenic bacteria. The A sounded on a violin string, pianissimo or fortissimo, always corresponds to four hundred and forty vibrations in a second (Stuttgart, 1884). The intensity of the note produced will depend only on the amplitude of the vibrations; the greater their amplitude, the "louder" will be the note produced. In the same way a slight affection of the human system affording genuine immunity represents exactly the same dynamic conditions as to the pitch of the molecular vibrations as does the grave malady. The difference between the two is only a matter of dynamic intensity and reflex acceleration of circulation, respiration, and body metabolism in general. The temperatures of the different diseases, on the other hand, though giving the same impression upon our perception, may actually be considered as being of "different timbres," just as the C of the treble stave when sounded on a violin and on a flute will be of a different timbre, though corresponding to the same number of vibrations which may be of equal intensity. Diseases, as a whole, may have an aspect differing from each other and still go with equal temperatures; this different aspect of the maladies, together with their characteristic molecular dynamic condition, may be said to constitute the timbre of the temperatures. Thus 102° F. in scarlatina and typhoid fever is due to different causes; the same temperature in the two differing diseases is therefore of a different timbre. On the other hand, a mild scarlatina or the slight constitutional disturbance resulting from vaccination represents exactly the same dynamic evolution as does the grave malady of scarlatina or small-pox. In both, the dynamic condition of the system attains the same pitch, only with different intensity. That the temperature corresponds only to the dynamic intensity of the disease and is not the chief manifestation of the dynamic processes occurring in the organism, is proved by the apyrexial cases observed in several of the immunity-affording diseases.* Whether the malady be grave or an insignificant ailment, the regain of the dynamic inhibitory power by the system will strengthen this formerly lost power and thus afford genuine immunity against bacterial invasion of the respective kind. "When immunity against a disease is desired to be created," says Chauveau, "it is not necessary to produce the disease or an aggregate of symptoms more or less attenuated. The attenuation of the effects may be carried so far as to render it absolutely impossible to recognize the disease, and, nevertheless, the immunity determined by this sort of artificial distemper is none the less sure." This statement is in perfect accordance with my views on immunity.

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* *Wiener med. Woch.*, 1884, No. 47.

As to the thrift of each bacterial species, there corresponds a peculiar dynamic condition of the system, or of a part of it; it is to be expected *a priori* that, besides the normal molecular vibration, other dynamic conditions of a changed character and produced by the agency of bacterial invasion also may have the same effect upon different germs as is manifested by the normal dynamic state of the organism. In other words, *the growth and multiplication of micro-organisms may become impossible or difficult in tissues that are in a certain dynamic state produced by germs of another species. This constitutes what I propose to call "the dynamic antagonism of bacteria."* On the other hand, bacterial proliferation may be promoted by certain dynamic conditions caused by micro-organisms of another kind; *this phenomenon I should call "the dynamic affinity of bacteria."*

Careful study of clinical statistics and actual experiments on animals will in time clearly show which bacteria are dynamically antagonistic to each other and which are affine. It seems to me, for instance, very probable that the pneumococcus and the *Bacillus tuberculosis* are dynamic antagonists, for it occurs rarely that acute lobar pneumonia supervenes pulmonary phthisis, and it is rare for phthisis to follow an attack of lobar pneumonia. (See *Med. Record*, 1891, p. 596.)

The antagonism of bacteria has been the object of quite extensive experimental studies, but from a standpoint entirely different from the one I alluded to, as will be understood from the following:

Garrè * found that a culture which previously became slightly impregnated with the ptomaines of *Bacillus fluorescens putidus* proved to be an unsuitable soil for the growth of pneumococcus, *Bacillus typhi abdominalis*, and *Staphylococcus pyogenes aureus*. A similar decided antagonism he observed between *Bacillus choleræ* and the germs of putrefaction. Garrè therefore maintained that the *Bacillus fluorescens putridus* was an antagonist to the pneumococcus, *Bacillus typhi abdominalis*, and *Staphylococcus pyogenes aureus*; also that the germs of putrefaction and cholera are antagonistic to each other.

Emmerich and Di Mattei,† first injecting erysipelas cocci into the aural vein, or into the dorsal subcutaneous tissues of rabbits, and then—one to nine days after the first injection—cultures of anthrax bacilli, could not discover any trace of these latter after a time varying from seventeen to forty-eight hours. Thus the existence of an antagonism between the cocci of erysipelas and the bacilli anthracis became evident. This having been established, it remained to be seen whether blood taken from rabbits that had been inoculated previously with *Streptococci erysipelatosi* would also check the growth of anthrax bacilli; but in this case the anthrax bacilli did not perish, though many were in a state of deterioration. In other words, the antagonism between these two species of microbes was chiefly manifest within the living organism, but not outside of it.

Pawlowsky, ‡ giving an account of similar experiments with different bacteria, thus commences his paper: "The fight that occurs between the various micro-organisms in nature and in the culture-tube MUST take place in the animal organism also according to the same laws and with the same results." Pawlowsky evidently forgot that a culture soil and the animal organism is not exactly the same thing, and that the living organism and the organic molecules may possess certain qualities of which the abiotic nutrient media of laboratories are devoid.

The experiments he undertook showed how mistaken he was in his supposition. By injection experiments he clearly established the antagonism that existed between anthrax bacilli and *Staphylococcus pyogenes aureus*, and between anthrax bacilli and pneumococci. Simultaneously with these injection experiments, Pawlowsky, following his teacher Virchow's advice, also observed the mutual influence of these bacteria *outside the living organism* on culture-plates and in culture-tubes. What did he notice? Anthrax bacilli could grow together with *Staphylococcus pyogenes aureus*, and were able to form spores, even, on the sixth day! The same was the case with anthrax bacilli and pneumococci.

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* *Med. Rec.*, 1891, p. 204.

* Ueber Antagonisten unter den Bacterien. *Correspondenzblatt für Schweizerärzte*, 1887, No. 13.

† *Fortschritte der Medizin*, Bd. v, No. 20.

‡ Virchow's *Archiv* vol. cviii.

Is it, therefore, considering the results of experiments obtained by Garrè, Emmerich and Di Mattei, and Pawlowski, not evident that there exist *two varieties of antagonism between bacteria—a chemical and a dynamical antagonism?* Is it not evident, also, that *the dynamical antagonism of bacteria is not dependent on the chemical antagonism, and vice versa?* Careful and numerous experiments will establish which bacteria are dynamical and which chemical antagonists.

Another phenomenon which could not be properly explained by any of the existing theories is the immunity against virulent anthrax obtained by preventive inoculations with attenuated anthrax bacilli. In my opinion, this phenomenon is closely related to the antagonism of bacteria, as will be understood from the following: Suppose we inject a pure culture of anthrax bacilli into the circulation of an animal susceptible to these germs, and then resort to another injection with the same culture as soon as the effects of the first infection become noticeable. The most competent investigators will undoubtedly agree with me when I say that *this second colony of anthrax bacilli will grow and multiply within the previously infected body as well as the first colony.* But the case will be an entirely different one if the first injection is made with a culture of bacilli that were cultivated at a temperature of 42° to 43° C., for a subsequent inoculation with virulent anthrax bacilli will prove harmless. How is this fact to be explained? Are these bacilli, cultivated at 42° to 43° C., really only attenuated germs exhibiting simply diminished virulence but no altered dynamical properties? If this were the case, no explanation could account for the immunity thus acquired against more virulent germs of the same species. *But if we assume that the attenuated anthrax germs give rise to a dynamic condition, to a molecular vibration different from the one caused by virulent germs of the same species—or, in other words, that attenuated and virulent anthrax germs are dynamic antagonists—the explanation of the phenomenon referred to becomes very simple.* For the sake of a clearer understanding of the aforesaid I remind the kind reader of the phenomenon of tempering steel. We all are familiar with the striking difference that exists between tempered and untempered steel, and which manifestly is due to a difference in the molecular arrangement produced by tempering. Should it be therefore surprising that the bacilli of anthrax cultivated under abnormal conditions—at least abnormal in regard to their biological properties—should alter in their intrinsic dynamic power to such a degree as to become dynamic antagonists to the virulent germs? Viewing this subject from such a standpoint, its understanding becomes an easy matter. The attenuated germs simply give rise to a molecular vibration of the tissues they proliferate in, characteristic of their own and antagonistic to the virulent germs. Properly speaking, these attenuated anthrax bacilli should be named "*alterodynamic*" or "*tempered*" *bacilli*, for they may be harmless to some animal organisms but may prove fatal to other species. *The vaccine of cow-pox represents a genuine attenuated variola-virus*, for it affords lasting genuine immunity by giving rise to the characteristic dynamic evolution *en miniature* which belongs to small-pox in an intensified degree, whereas anthrax bacilli cultivated at 42° to 43° C. are dynamic antagonists to the normal germs, and confer only temporary immunity, which is based on a cause *entirely different* from the immunity that is afforded by the self-protecting diseases or by vaccination in regard to variola. Another idea suggests itself in connection with the subject of immunity. I said that in the diseases affording immunity—*i. e.*, in those that are produced by general acrodynamic bacteria—the system as a whole undergoes a dynamic change and a dynamic evolution. Physiological experience has proved that every function of the organism is focused, is centralized. I consider it as most probable that there exists *a dynamic inhibitory center in the central nervous system*, perhaps in close relation to the heat centers or independent therefrom, which imparts to the whole organism a state of dynamic inhibition against bacterial efforts to overcome the normal vibration of the organic molecules. If we could, for instance, show that certain animals, endowed with natural or acquired immunity against certain bacteria, lose this immunity if we produce lesions in some part of their brain, the existence of such a dynamic inhibitory center would become established beyond doubt. On the other hand, it seems reasonable to assume the existence of local dynamic inhibitory centers, whose influence invading bacteria first have to neutralize, whereupon these bacteria change the molecular dynamic state of these centers, and these latter in turn effect a similar change in the parts governed by them. In this case the expression "dynamic inhibitory power of the system or of a part of it" would have a secondary meaning.

Leaving aside for the present the assumption of central and local dynamic inhibitory centers, I give a short *résumé* of my views expressed in this paper in the following:

1. Chemically the different animal organisms are equally good nutrient media for bacteria.

2. The normal molecular vibration of the organism checks the growth and multiplication of bacteria.

3. The molecules of the animal organism are endowed with a dynamic inhibitory power.

4. Bacteria that enter the animal system can only proliferate therein if they are capable of changing the normal molecular vibration to one that corresponds to their own biological properties.

5. Bacteria, according to the dynamical changes they give rise to in the organism, are either homodynamic or acrodynamic. Acrodynamic bacteria are either local or general.

6. Immunity is either lasting, genuine, or only temporary, transient.

7. Only diseases conferring genuine immunity are due

to general acrodynamic bacteria, and, *vice versa*, only general acrodynamic bacteria can impart genuine immunity.

8. The regain and simultaneous increase of the dynamic inhibitory power of the system after an affection due to general acrodynamic bacteria constitutes the cause of genuine immunity.

9. Natural and acquired immunity against general acrodynamic bacteria represent the same condition of the system.

10. Certain bacteria are antagonistic to others. This antagonism is either chemical or dynamical.

11. Temporary immunity against a certain species of bacteria is due either to dynamic antagonism of other species of micro-organisms or to dynamic antagonism of alterodynamic bacteria of the same species

143 WEST FORTY-FIRST STREET.

TRAUMATIC OCCLUSION OF THE EXTERNAL AUDITORY MEATUS.*

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LECTURER ON DISEASES OF THE EYE AND EAR
AT THE H. W. BISHOP TRAINING SCHOOL FOR NURSES.

THE patient whom I show to you to-night, a boy eleven years of age, was injured last July by a heavy box falling upon him. On admission to the New York Hospital shortly after the accident there was a lacerated wound which separated the lobe of the right ear from the cheek, and another lacerated wound within the external auditory meatus on its anterior wall, through which a probe was passed toward the median line under the right cheek as far as the outer canthus of the right eye. The case was treated according to the usual surgical method, and the patient was soon able to leave the hospital and attend the out-patient department.

About the 1st of last October the patient was sent to the Manhattan Eye and Ear Hospital on account of a closure of the right ear, and was admitted to the service of Dr. O. D. Pomeroy, to whom I am indebted for the further conduct of the case. On admission, the external auditory meatus was found to be occluded by a mass of tissue, covered with integument, situated about a quarter of an inch internal to the tragus. After some search, a very small opening was found in the supero-posterior quadrant, which led into a more enlarged cavity. This opening was slightly dilated with a Weber's lacrymal probe, and a piece of India-rubber drainage-tube was introduced in the following manner: A fork was made at the end of a piece of wire of about the size of an ordinary ear-probe; each prong was caught into the sides of the rubber tube, which was stretched over the wire until the greatest possible amount of tenuity had been obtained. The forked wire, thus covered with a thin layer of rubber, was passed through the opening, and, after the inner end of the tube was well within the cavity behind the occlusion, the outer end was released, and the elasticity of the rubber immediately caused constant, even pressure to be made upon the tissue of the membrane. In a few days the opening had become large enough to admit of the introduction of a larger tube, and in less than two weeks he could wear a tube of the size which he is now wearing. The hearing, which was very poor, the watch being heard only on contact, rose immediately after the introduction of the tube to its present good condition.

Occlusion and stenosis of the external auditory meatus are conditions in which, as a rule, the results of operative interference are not brilliant, because it is always difficult and frequently impossible to prevent immediate reclosure of the canal. Nothing in surgery appears simpler than the treatment of these conditions; nothing is more deceptive. Sometimes there is a congenital absence of the canal, with perhaps a slight pitting at the place where its external opening should be, and perhaps the observer may feel what appears to be the outer extremity of the bony canal. At first it seems like a slight operation to cut a little distance down upon the bone, maintain the opening until cicatrization has occurred, and so form a new meatus. Even though a bony occlusion is found, it does not seem difficult to drill through this and restore the lumen of the canal. But the difficulty is met with in maintaining the patency of the canal. Very few operations present so great a percentage of failures, exclusive of operations performed in cases in which imperfection of the middle or internal portion of the ear could be reasonably apprehended. The almost invariable result of operations in these cases has been reclosure of the canal during or immediately after the cessation of efforts to maintain its patency.

Occlusion of the canal by a membrane after birth has been noticed more rarely, and usually as a sequela to suppurative inflammation of the middle ear. The formation of these membranes has been described by Purjesz, who had the opportunity of watching the development of one in a case of chronic suppurative otitis. Granulations appeared on the upper and lower walls of the canal, exactly opposite each other, grew larger and larger until they met, fused, and formed an occluding membrane of connective tissue. In these cases, also, the surgeon's attempts to restore and maintain the patency of the canal frequently prove of no avail, because of the tendency to reformation of the membrane, which seems to be as marked as the tendency to reformation of the web after operations on syndactylism.

After a fairly extensive search through the literature of this subject I have been able to find accounts of only two cases which, like this one, were clearly traumatic in their origin. Both these cases were reported in the *American Journal of Otology* by the house surgeon, at that time, of the New York Eye and Ear Infirmary. One resulted from the kick of a horse upon the side of the head, the other from a fall. In the latter there was a clear history of injury to the wall of the canal; the other had existed for years before coming under observation. One patient refused operation; the other, the one in the recent case, had the entire occluding membrane removed, but, in order to conduct the operation to a satisfactory result, it was found necessary to practice dilatation for several months afterward.

On account of the difficulties, in the form of obstinate granulations and reformations of membrane, which beset the usual attempts to remedy this condition, I determined to attempt to induce absorption of this newly formed tissue by pressure.] [For this purpose soft rubber tubing seemed the most suitable, and in its action it appeared to leave little to be desired. For five months the tube was worn constantly, and nothing could be seen of the membrane except as a red line about the canal. One day the tube came out and remained out three days. I can not say that I was surprised, but I was disappointed to see at the end of that time that the canal had narrowed at this place at least a half. The tube was inserted again, the stricture again dilated, and a silver tube substituted. This tube, it is expected, will be worn constantly for a year or two.

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* Read before the New York County Medical Association, April 20, 1891.

An operation which seems feasible to me in a case like this, though I have never seen it suggested, is similar to one which is employed in cases of webbed fingers. It would be to remove the external layer of the occluding membrane, divide the remaining portion into four or more parts by incisions radiating from the center, so that each portion or flap could be made to lie smoothly upon the wall of the canal, to denude the surface of the canal covered by the flaps so formed and laid down, and to attach the flaps to these denuded surfaces by means of sutures or collodion. For the successful performance of this operation it is necessary that the occluding structure should consist of a membrane situated but a short distance internal to the tragus, in order that the necessary room may be obtained for the manipulation. It would, at the best, be a tedious operation, and, if the membrane was too far within the canal, it would probably be impracticable; so I am by no means certain that it would afford a better means for removing such an occlusion than the inducement of its absorption by pressure.

7 East Forty-first Street.

THE PHARMACOLOGY AND THERAPEUTICS OF EUPHORBIA PILULIFERA.*

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The remedy to which your attention is called is one having a history antedating by several centuries its employment within the past ten years for the relief of pulmonary and bronchial affections. Piso, of Amsterdam, as early as 1658, describes *Euphorbia pilulifera* as an antidote and sedative for snake-bites, the freshly bruised twigs being applied to the wound, to allay pain, destroy the poison, and promote healing. The knowledge of its stimulating properties is indicated by the recommendation of its internal administration to counteract the depression due to the presence of the poison in the system. More than a hundred and fifty years later than the period just mentioned the antiseptic properties of euphorbia attracted some attention, Ainslie (*Materia Medica*, London, 1826) having advocated the use of the fresh juice locally in aphthous conditions. Indeed, with the first reports of the virtues possessed by euphorbia came the intelligence that one species (N. O. *Euphorbiaceæ*), of which there are not less than six hundred, was regarded as a specific for small-pox; still another species was brought forward as a cure for cancer, all going to show the marked toxic activity of the entire genus or family. These are questions, however, which can be more profitably considered in their regular order.

To Mr. T. W. Shepherd, of Milson's Point, Sydney, Australia, belongs the credit of first publishing accounts of its successful employment in bronchitis and asthma. These reports probably came under the observation of Dr. M. Matheson, at that time physician and surgeon to the Aramac District Hospital of Queensland, who communicated an account of his experience, covering forty cases of asthma and bronchitis, to the late Dr. William Brodie, of Detroit. About this time, or shortly after, Dr. Tison, a Frenchman, published accounts of his investigations of several species of this family, and wrote in glowing terms of euphorbia in the treatment of asthma and in the dyspnœa of cardiac origin. Dr. A. Marsset, of Paris, was the next to study the therapeutic properties of the plant, his studies being confined to the Queensland product. He was the first to call attention to the extended distribution of the plant, which is found under various names throughout tropical America, from Florida and New Mexico to Brazil and Peru, a fact which leads to the conclusion that the virtues of the drug may be modified by the locality whence obtained. Dr. Marsset investigated the chemical composition and physiological actions in the therapeutical laboratory of Dujardin-Beaumetz, under the direction of Dr. Bardet, chief of the laboratory, a full account of which appears in *The Pharmacology of the Newer Materia Medica* (Detroit, 1890). To this excellent compilation I am indebted for many valuable suggestions in the preparation of the following pages, and those wishing to study the literature upon the subject are referred to that publication. The names of numerous contributors, necessarily omitted for want of space, will be found there.

Materia Medica.—Euphorbia pilulifera, Linnæus (*Euphorbiaceæ*), known also as pill-bearing spurge, snake-weed, cat's-hair, etc., is a prostrate or ascending branched plant found growing in southern Australia and other tropical and sub-tropical countries. The plant when erect ranges from one to two feet in height, and derives its common name from the appearance of the fruit, which bears a striking resemblance to pills. It belongs to the same family as the castor-oil and croton-oil plants, but should be distinguished from *Euphorbia parviflora* which, like *Euphorbia pilulifera*, is quite common in India, but whose properties have not as yet been studied. Dymock refers to two species of euphorbia, *Euphorbia hirta* and *Euphorbia thymifolia*, "two common weeds which flourish at all seasons of the year on gravel walks and waste ground in Bombay" (*The Vegetable Materia Medica of Western India*, by W. Dymock, Surgeon-Major, Bombay Army, etc., Part IV, p. 693). The descriptions of both plants correspond in many respects with the botanical description of *Euphorbia pilulifera*, but nothing is said to indicate that either have ever been employed medicinally, except that they have some local reputation as vermifuges. The *Euphorbia parviflora*, he says, has similar properties, and, besides, the juice is employed for the cure of ringworm, and, mixed with ammonium chloride, is used as a lotion for dandruff.

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* Read before the Medical Society of the State of Pennsylvania at the annual session, held in Reading, June 2–5, 1891.

The virtues of the drug are best extracted by water, and the dried plant may be employed in the form of a decoction. A reliable preparation is the fluid extract, from which an infusion of the strength of one part of the extract to fifteen parts of hot water can be prepared extemporaneously. The dose of the fluid extract (freely miscible with water in all proportions) is ♏ xx–xxx, every four hours. The dose of the infusion is half an ounce three or four times a day.

Pharmacology.—Experiments upon *frogs and guinea-pigs* show that lethal doses at first accelerate then retard respiratory movements and cardiac contractions, but careful examination failed to detect any variation in the dimensions of the blood-vessels, bronchi, or alveoli (Bardet). Further, in animals poisoned by this drug, there was no apparent effect upon the cord, neither sensibility nor motility being in the least altered. The muscular system remains unaffected; the capillaries are not in the least modified by toxic doses, and upon secretion it has apparently no influence. As no odor peculiar to the drug can be noted in either the breath or urine, it has been assumed that the active principle is eliminated along with the coloring matter by the liver, the gall-bladder being greatly distended with bile having the characteristic color of the drug. Toxic doses have the effect of arresting the respiration, which is followed by the stoppage of the heart in diastole, showing that euphorbia acts upon the cardiac motor ganglia simultaneously with its action upon the respiratory center.

In man the medicinal dose is not sufficient to produce these toxic effects, and only those physiological effects are sought which contribute toward the regulation of spasm. The conclusion seems to be warranted, therefore, that euphorbia produces the results claimed for it, through its influence upon the pneumogastric, acting through the medullary center. It is not beyond the range of possibilities that elimination through the liver may contribute something toward the stimulation of that organ, and thus another factor is added to the physiological manifestations of the drug.

Notwithstanding the apparent harmlessness of this drug when given to healthy frogs and guinea-pigs, I desire to offer a word of caution concerning possible deleterious effects when we have to deal with either functional or organic disease of the kidney. When functional derangement of the kidney presents itself, often the result of hepatic changes, the coloring matter of the drug will be eliminated by the kidneys, and for obvious reasons it should be exhibited in these cases with extreme caution. Although Mr. Shepherd was a stanch believer in the harmlessness of the remedy, Dr. Matheson taught that it should be employed with care, and only under the advice of a competent medical man. He also recorded the fact of having witnessed ill consequences from its administration.

Therapeutics.—So many reports have been published, almost uniformly favorable, that an analysis or detailed account of them would be mere repetition and take up time unnecessarily; and, inasmuch as they are so readily accessible, I will consider in the briefest possible manner some of the more distinct indications for the employment of the drug. The pathology and clinical conditions attending the appearance of asthma, whether of the spasmodic variety or not, are various, and to distinguish between them is an extremely complicated process. Without attempting to make any classification, I wish to speak in a general way of the varieties usually met with in general practice. 1. For example, it is well known that many cases of asthma are due to an unhealthy condition of the digestive tract. Although the exact conditions favoring the development of these attacks may not be fully understood, it is quite evident that the *materies morbi* is located in the stomach, the liver, or the bowels. To this class belongs a considerable number in which the attack follows some form of exposure, where the exposure has the effect of causing some disturbance of the digestive tract. 2. A second class would include a large number of persons who either suffer from some bronchial affection, or they are subject to nasal catarrh, or other similar affection of the upper air-passages, and in whom we find suitable subjects for increasing the ranks of the hay-fever army. It is but a question of time when many of them will begin to experience some symptoms of nasal irritation, which is followed by bronchitis, and finally they become sufferers from that inscrutable disease, hay-asthma. 3. A third class should also receive some attention, a considerable number who are doubtless the victims of circumstances, as the development of the disease is evidently due to their environment. These instances I have learned to regard as due to lack of nutrition; either the regularity or irregularity of their lives, together with their environment, finally produces a depressed condition of the system, permitting the accumulation of poisonous materials (suboxidation), and asthma is the result. Every observant physician can count among his patrons a number of people who are gradually getting ready for the reception of this disease. Although we can not with certainty predict whether a patient will ultimately suffer from rheumatism, Bright's disease, gout, or lithiasis, we can not gainsay the evidence which points to a derangement of function which, if not arrested, will eventually result in one of the diseased conditions mentioned. The conditions pointing to asthma, bronchitis, emphysema, and pulmonary affections are less distinct, but we must remember that less care has been given to this matter than disorders of the liver and kidneys have received. 4. Climate and hereditary influences should not be overlooked, but these will be referred to only incidentally. It will be sufficient to say that, with a climate adapted to the patient, the hereditary influences may be set aside, as I have seen patients who have suffered all their lives overcome the tendency to develop attacks of spasmodic asthma from the use of this remedy.

At this time I will speak only of the first two classes, as they cover practically the majority of cases coming under the observation of the general practitioner. Where persons are under forty years of age and fairly well nourished and free from organic diseases, attacks of asthma may be controlled, if not wholly, arrested, by the judicious employment of euphorbia. I have not found it so efficient for securing immediate relief as the hypodermic use of small doses of morphine and atropine, along with the occasional addition of one drop of trinitrin (the one-per-cent. solution of nitroglycerin). Where we have to contend with a disordered condition of the alimentary tract, I have found the alternate use of a modified Fothergill pill valuable. The euphorbia is ordered, thirty drops in water or glycerin every four hours for several days, and this is followed by the pill made according to the annexed formula ("new Fothergill pill—Aulde"):

℞ Strychnine sulphate	gr. $\frac{1}{100}$–$\frac{1}{50}$;
Powdered ipecac	gr. $\frac{2}{3}$;
Powdered black pepper	gr. $\frac{1}{4}$;
Extract of gentian	gr. j;
Oil of wintergreen	gtt. $\frac{1}{20}$.

M. et ft. pil. no. i.

Sig.: Take one pill after meals.

I have used a large number of these pills, and studied their action with the greatest care, and I believe they have given better satisfaction than any other combination. In women and delicate persons the amount of strychnine should be reduced to a hundredth of a grain, as I have found that the larger dose will occasionally produce physiological effects which are objectionable. Should the bowels not act satisfactorily under the use of the pills, it will be advisable from time to time to exhibit a mild saline early in the morning. The method of treatment here outlined, the alternation of the euphorbia with the pills and the use of the saline, will prove of remarkable benefit in the treatment of asthmatic cases such as have been described above, and a similar plan will also prove serviceable in persons farther advanced in life where no serious organic changes have taken place.

The second class of cases—those in which the asthma has followed or is directly or indirectly connected with hay-fever, affections of the upper air-passages, bronchitis, or emphysema—while they will show decided benefit, will not furnish the brilliant results which are witnessed in the class just described. The euphorbia will have a favorable effect upon the bronchitis of the subacute and chronic variety, and will produce a favorable change in the emphysematous condition, but suitable local medication will be required to control the sensitiveness of the nasal mucous membrane. The remedy most successful here will be one which is unirritating, and when applied produces a distinctly sedative effect. No remedy so far offered to the profession seems to promise better results than liquid petrolatum (purified). It is an oil of the consistence of glycerin (colorless), and can be used with an atomizer after the parts have been rendered antiseptic by other means. For the relief of the bronchitis suitable medication must be adopted with a view to cause the expulsion of the accumulated mucus, and along with these should not be forgotten the value of approved tonics to the pulmonary structures.

It will be unnecessary to go into a discussion of the advantages of securing favorable climatic and hygienic conditions, as this is always understood. Perhaps a word should be added concerning the value of euphorbia in the treatment of influenza. It is not indicated in the active stage, but may be alternated with terpene hydrate after the active symptoms have subsided, when it will be found that the two drugs will have the effect of promptly clearing up the bronchial irritation which is so persistent in this disease.. While spending the past winter in Florida I had an opportunity of witnessing remarkable benefits from the employment of these two drugs. Although the patient was not permanently benefited in every case of this nature, in nearly every case there was a favorable affect within twenty-four hours, and the majority of them were permanently relieved from all sequelæ of influenza. Occasionally I had good results from its combination with *Grindelia robusta*, ten minims, with twenty minims of euphorbia, in glycerin, every four hours. I have no doubt other combinations might be suggested which would prove useful to the general practitioner.

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IMPACTED CERUMEN
INVADING THE MASTOID PROCESS AND PRODUCING FACIAL PARALYSIS.

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IMPACTION of cerumen in the external auditory canal ordinarily produces no serious consequences beyond the mechanical obstruction which it offers to acute perception of sounds and the irritation and ulceration which the contact of the hardened mass produces in the integument lining the walls of the canal and in the superficial epithelial layers on the external aspect of the membrana tympani. But that this apparently simple condition may produce serious and even dangerous conditions, which are far-reaching in their results, the history of the following case will show.

August 30, 1890.—Peter S., aged fifty, farmer, was sent to me by my friend Dr. A. H. Andrews, of Springville, Iowa, for an examination of his ears. He gave the following history: Complete deafness in right ear since the war; has never had pain in the ear to speak of until about eight weeks ago, when, after exposure to dampness, the pain came on and was very acute for a few days, when it subsided somewhat and, shortly after, complete paralysis of the right side of the face developed.

Dr. Andrews had treated him with strychnine sulphate, one thirtieth of a grain, three times a day, and had applied the faradaic current, without benefit.

The condition at present is as follows: Face drawn well over to the left side, muscles relaxed, marked ptosis of right upper lid, and almost complete ectropion of right lower lid; he can move the upper lid slightly through its connection with the frontalis muscle. Examination of the ears shows right external auditory canal completely filled with a black, hard mass of inspissated cerumen. Apparently no perception of sound in that ear. There is now no tenderness or swelling over the mastoid, but patient stated that there had been a slight amount of swelling and tenderness some weeks ago.

The impacted cerumen was removed by a current of warm water and the use of the curette and hook, revealing complete destruction of the membrana tympani and disappearance of the ossicles.

On looking more closely along the walls of the canal, I discovered on the posterior wall what appeared to me to be a scale of wax which I had failed to remove. Upon attempting to remove it, I found that it was a plug of cerumen which closed an opening from the external auditory canal into the cavity of the mastoid process. Having found that to be the case, I continued the operation and succeeded, eventually, in removing a large amount of wax, desquamated epithelium, and a small amount of pus, thus emptying a cavity which involved the whole mastoid process, there being complete absorption of the cellular elements of the process.

The work of removing the material from the cavity having occupied some time, I had not noticed his face; but when I had completed my operation, what was my surprise to note a marked improvement in the facial condition; the upper eyelid now moved quite freely and the mouth was much less drawn to one side.

I then carefully syringed out the cavity with a warm, saturated solution of boric acid and packed it loosely with absorbent cotton, saturated with vaseline containing one minim of oil of cinnamon and five minims of carbolic acid to the ounce.

The patient returned home, and I instructed Dr. Andrews to continue the use of the strych. sulph. and electricity, and, in addition, to practice massage on the facial muscles.

September 4, 1890.—Dr. Andrews writes that the muscles of the face, except the palpebral, contract nicely. The lower lid still shows very little voluntary contraction and a large amount of ectropion. Continue same treatment.

16th.—I again saw the patient and found the action of all the facial muscles normal; lids move freely; no evidence of paralysis. The mastoid cavity is dry and free from pus. He is now wearing only a small plug of absorbent cotton in external auditory meatus. No perception of sound in right ear. I regret that I did not test bone conduction in this case.

January 7, 1891.—The patient writes that he has had no further trouble with ear or face.

This case is interesting in that the mastoid cavity was filled with inspissated cerumen, and that an opening in the bony wall of the canal established free communication with the mastoid cavity. There was also free communication between the antrum of the mastoid and the middle ear, as was shown by the free escape of injected fluid in both directions.

The case is also interesting in that the point of pressure on the seventh nerve was in its passage through the mastoid, and not, as is usually the case, in that portion of the nerve lying in close proximity to the middle ear; and, finally, it is interesting to note that complete recovery was secured in a case of facial paralysis of more than two months' standing.

Spermine.—" Dr. Louis Henry has lately been investigating the qualities of spermine. His experiments, both chemical and clinical, have been extended over a period of six months, and he has manufactured the crystals by three processes—namely, the ammonia-baryta process, the sulphureted-hydrogen and phosphotungstic-acid process, and a modification of these two. In each instance the yield of crystals from offal which consisted of the testicles of rabbits, hares, drakes, and roosters, was infinitesimal, about forty ounces of offal yielding but a couple of grains. The crystals were in clusters of feathery spears. The clinical experiments, of which a large number were made in all classes of patients suffering from debility, phthisis, paralysis, old age, etc., were all of a negative character. In some instances over two grains of the salts were subcutaneously injected without any physiological result whatever. Dr. Henry injected himself, with similar results."—*British and Colonial Druggist.*

A New Codeine Derivative.—" In the preparation of apocodeine a second crystalline base is formed which closely resembles codeine. It is a strong base, and differs from apocodeine in its power of crystallization. It is distinguished from codeine by its high melting point (182°), by being less soluble than codeine in the ordinary reagents in the crystalline form both of the free base and its hydrochloride, and by its being precipitated by ammonia both from the hot and cold aqueous solutions of its salts in the form of small needles. Its physiological action is similar to, but less powerful than, that of codeine, so that it does not appear likely to be of much therapeutical value."—*British and Colonial Druggist.*

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CEREBRAL ABSCESS LOCALIZED BY "FOCAL" SYMPTOMS AND SUCCESSFULLY TREATED BY TREPHINING.

Dr. Edward U. Nason reports the following interesting case in the *Lancet* for May 30th: A healthy young man, aged eighteen, fell upon the sidewalk, striking on the back of his head. He complained somewhat of headache afterward, but his symptoms did not become serious until a month later, when Dr. Nason was called to see him in consultation. The patient then complained of severe headache, the point of maximum intensity being about an inch above and behind the external angular process of the right frontal bone; also of pain in the back of the neck on movement. There was paralysis of the left side of the face and of the left arm, with impairment of sensation over the paralyzed areas. The tongue deviated slightly to the left when it was protruded. The left leg did not move quite so freely as the right. There was no paralysis of the ocular muscles and the pupils were equal and reacted to light. There was well-marked double optic neuritis, with distention of the retinal veins, more marked in the right than in the left eye. The patient was drowsy, became more and more somnolent, and finally was quite unconscious. While in this condition he had a chill lasting half an hour, which was followed by a convulsive seizure beginning in the left side of the face and in the left arm. This was accompanied by conjugate deviation of the eyes to the left, turning of the face to the left, and considerable cyanosis.

From these symptoms Dr. Nason concluded that the patient was suffering from an abscess situated in the substance of the brain somewhere between the cortical centers for the face and arm and the internal capsule, causing the paralytic symptoms; and that it was beginning to involve the cortex near those centers, causing the symptoms of cortical irritation. He therefore decided to trephine at once. The operation was done in the usual manner, and pus was found in what seemed to be the lower portion of the right ascending frontal convolution. After the escape of half an ounce of pus, a drainage-tube was inserted into the abscess cavity and the wound was closed. On recovering from the shock of the operation, the patient said that the pain in the head was much less, but complained of feeling extremely cold down the left side and of a great deal of pain in the left shoulder. The surface temperature of the left side was found to be very distinctly lower than that of the right, and the skin felt quite cold to the touch.

In the course of the next three weeks the patient gradually recovered from his paralysis, motor power and sensation returning together, first in the arm, then in the forearm, and finally in the wrist and hand. The adductor pollicis and the opponens pollicis were the last muscles to recover their power. In a month from the date of the operation the wound was healed and recovery was complete, except that the fingers of the left hand were still a little clumsy.

Dr. Nason believes that the mode of recovery from the paralytic condition goes to prove that the various cortical centers are centers for associated movements and not for individual muscles; also that sensation and motion are represented together in the central convolutions. He thinks that it could also tend to prove that the centers for the various associated movements of the arm are placed from above downward in the following order: Shoulder, upper arm, forearm, wrist, and hand, the thumb being lowest of all. The one-sided coldness, due to constriction of peripheral vessels, points to a disturbance of a corresponding vaso-motor center.

THE CARE OF THE HANDS BY MEANS OF HYDROGEN PEROXIDE.

Dr. Charles Noble, in the *Medical and Surgical Reporter*, suggests the use of peroxide of hydrogen as a cleansing agent for the hands of surgeons, obstetricians, and nurses. He feels sure that the remarkable pus-destroying properties of this substance are becoming better appreciated every day. Nearly every surgeon who has been led to use it in the treatment of suppuration and false membrane has become an enthusiast in its behalf. In regard to its use upon the hands, he maintains that with it he can render those members surgically clean—that is, free from septic micro-organisms—a condition that can not be attained by the use of soap and brush and solutions of corrosive sublimate. Under the latter method, it has been demonstrated time and again that germs will still linger under and around the finger nails. And irritating fluids, like sublimate solutions, are not without the alleged fault of rendering the skin of the hands rough and a more secure abiding place for the germs of disease than would be the case if blander fluids were used upon the hands.

In preparing for such operations as abdominal section, Dr. Noble has for some months employed the peroxide to aid in obtaining an aseptic cleanliness of his hands. He does not assert that this drug will alone and of itself insure an aseptic state, because he has not determined that this is the fact from bacteriological research, but he is positive that all its activity is exerted to promote asepticism. His method consists in first washing the hands thoroughly with soap, using a stiff nail-brush and renewing the water three times. The hands are next soaked in a saturated solution of permanganate of potassium, and this is removed by soaking again in a saturated solution of boric acid. The finger tips are next soaked in the peroxide solution, in the full strength of the ordinary fifteen-volume solution. Lastly, a bath of corrosive-sublimate solution, 1 to 1,000, is employed. The hands are allowed to remain in the sublimate solution for about three minutes. Not less than ten minutes, and even as many as fifteen minutes, should be devoted to this toilet of the hands. That this expenditure of time and attention is not valueless he argues from the fact, demonstrated by bacteriological experiments, that some, although comparatively few, germs have been found about the finger nails cleaned in this manner, excepting the use of the peroxide solution, and it is his hope that the addition of the latter may complete the good work of the other steps of the procedure.

MINOR PARAGRAPHS.

FOOTBALL CASUALTIES.

The *Pall Mall Budget*, in a recent issue, had a classified list of the accidents consequent upon rough play at football in England. Upward of fifty casualties were there given as having occurred during the six months' season then just expired. Of these, not fewer than seventeen were known to have resulted in death, a considerable proportion of the fatalities being due to rupture of the liver, spleen, or intestines. Rupture of the kidney was assigned as the cause of death in a still more recent case reported in the *Lancet*. This last, somewhat rare, form of accident occurred in a game of football at Birmingham. The player appeared at first to be only slightly injured. A few hours later, however, he became worse, was taken to a hospital, fell into a state of collapse, and succumbed within twenty-four hours after the accident. The post-mortem examination disclosed the fact that the pelvis of one kidney contained a large calculus; there were also some cysts in that kidney. The rupture of that kidney in its diseased condition resulted from the violence of the game as it became the player's lot to engage in it; and, as the source of his collapse was not suspected, nothing was undertaken for his relief.

A CASE OF TUBERCLES OF THE BRAIN WITH INVOLUNTARY MOVEMENTS OF THE HAND.

The *Gazette hebdomadaire de médecine et de chirurgie* for May 2d contains a notice of a case originally reported by Ewald in the *Berliner klinische Wochenschrift*. A boy, seventeen years of age, was suffering from acute miliary tuberculosis. The interesting feature of the case consisted in the fact that the left hand was immediately turned upon the dorsal surface unless it was held firmly by the right hand. At the same time there were movements of flexion and extension of the fingers more or less similar to those of athetosis, but more abrupt in character. Left hemiparesis was also noted. Ewald made the diagnosis of tubercles situated in the external part of the optic thalamus and the posterior part of the internal capsule. The autopsy confirmed the diagnosis, but also showed tubercles lying in the upper region of the right ascending frontal convolution and a few other smaller tubercles scattered in various parts of the convexity of the brain.

MENINGEAL HÆMORRHAGE AS A CAUSE OF DEATH IN THE NEW-BORN.

In the *Gazette des hôpitaux* for May 19th we find a summary of Dr. Richardière's recent work on this subject. His conclusions are as follows: 1. Meningeal hæmorrhage constitutes one of the most frequent causes of death in the new-born. 2. It occurs at the very moment of birth. 3. It differs from the majority of meningeal hæmorrhages in the adult by the absence of previous inflammation of the arachnoid or of the dura mater. 4. It is accompanied, in two thirds of the cases, by subpleural ecchymoses. 5. Death usually occurs very quickly. 6. The cause of the hæmorrhage is the traumatism of the delivery, or, more exactly, the traumatism to the head at the moment of its passage through the pelvis. 7. Meningeal hæmorrhage, considered from a medico-legal standpoint, excludes of itself all idea of criminal intervention.

THE DERMIC METHOD OF ADMINISTERING QUININE TO CHILDREN.

Professor I. V. Troitski (*Vratsh*, April 18, 1891) objects to this method, even in cases of an irritable condition of the gastro-intestinal tract. He states that the degree of absorption by this method is not yet known, and *a priori* one may suppose that it varies with the physical condition of the patient. The best place for the inunctions, he thinks, is the thorax posteriorly. The quinine is best absorbed when prepared with glycerin and alcohol. After the inunctions the presence of quinine is detected in the urine, but the amount absorbed into the blood is too insignificant to have any antipyretic action. If there is any, it is due mostly to the alcohol used with it. In children above seven years of age the absorption becomes insignificant in amount.

ENDOCARDITIS AND CHOREA.

The exact relationship between chorea, rheumatism, and valvular disease of the heart, notwithstanding the numerous investigations of recent years, is still somewhat uncertain. The proposition that any endocarditis accompanying chorea is of rheumatic origin is not always evident, as is shown by a case reported by Dr. Ashby in the *British Medical Journal* for April 25th. The patient had never had rheumatism or any previous attack of chorea. The movements began two weeks after an attack of amygdalitis, and became very severe, and death resulted from exhaustion after an illness of five weeks. There was moderate fever throughout the illness. Extensive pneumonia of the right lung was found, also endocarditis of the mitral valves, but no pericarditis. Many would accept the occurrence of the tonsillar affection as a manifestation of rheumatism.

THE ACTION OF EXTREMES OF TEMPERATURE ON LEUCOCYTES.

Dr. E. Maurel (*Journal des sociétés scientifiques*, October 29, 1890) has studied the action of extreme temperatures on the leucocytes, and concludes that the maximum energy is exhibited by the leucocytes at the normal temperature of the blood. They show impaired activity during febrile conditions of the organism. At a temperature of 47° C. (116·6° F.) they die rapidly.

A CONGRESS ON INEBRIETY.

An assemblage that may properly be so styled, although the announcements called it "the Medical Congress," consisting of physicians and others, was in session on Wednesday and Thursday of this week at Prohibition Park, on Staten Island. Dr. N. S. Davis, of Chicago, presided and gave the opening address.

ITEMS, ETC.

The Appleton Prize, a prize of medical publications of the value of $25, offered annually by Messrs. D. Appleton & Co., of New York, to the candidate passing the best examination before the Board of Medical Examiners of the State of North Carolina, was won this year by Dr. Russell Bellamy, of Wilmington. According to the *Southern Medical Record*, seventy-five applicants for the license to practice were examined by the board.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 14, 1891:

DISEASES.	Week ending July 7.		Week ending July 14.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	3	0	0	0
Typhoid fever	12	3	23	3
Scarlet fever	115	22	146	37
Cerebro-spinal meningitis	0	2	4	5
Measles	181	14	240	17
Diphtheria	77	35	88	31
Small-pox	0	0	2	0
Varicella	0	0	1	0
Whooping-cough	1	0	0	5
Erysipelas	0	0	0	0
Mumps	0	0	0	0

The Honorary Degree of LL. D. has been conferred on Dr. Joseph O'Dwyer by St. John's College, of Fordham, N. Y.

The Death of Dr. William W. Jones is announced as having taken place at his home, in New York, on Saturday, the 11th inst. Dr. Jones was a graduate of the College of Physicians and Surgeons, of the class of 1842. He was formerly one of the physicians of St. Luke's Hospital. At the time of his death he was seventy-eight years old.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 5 to July 11, 1891:*

Irwin, Bernard J. D., Colonel and Surgeon. Relieved from duty at St. Louis, Mo., and ordered to Chicago, Ill., for duty as Medical Director, Department of the Missouri.

Banister, W. B., Captain and Assistant Surgeon. Granted leave of absence for fourteen days.

Buell, James W., Captain and Assistant Surgeon, is retired from active service by reason of disability incident to the service.

Owen, William O., Jr., Captain and Assistant Surgeon Detailed to attend the encampment of the Illinois National Guard, near Springfield, Ill., from July 18 to 25, and August 11 to 18, 1891.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending July 11, 1891:*

Boyd, Robert, Assistant Surgeon. Ordered to the U. S. Receiving-ship Dale, Washington, D. C.

Society Meetings for the Coming Week:

Tuesday, *July 21st:* Medical Society of the County of Otsego (annual—Cooperstown), N. Y.

Letters to the Editor.

INTRA-UTERINE AIR: ITS FUNCTIONS AND ITS DANGERS.

Philadelphia, *June 27, 1891.*

To the Editor of the New York Medical Journal:

Sir: The presence of air within the uterine cavity after the escape of the liquor amnii can be demonstrated not only by percussion, but by inserting a slender, pliable, and non-compressible tube within the uterus, and observing that with each "pain" either air, or first a part of the residual liquor amnii and then air, will be expelled from its external orifice.

This intra-uterine air performs several important functions. It helps to preserve the globular form of the uterus and prevents the uterine walls from being driven down against the fœtal parts by the atmospheric pressure on the abdomen. It probably acts as an excitant of the contractions by becoming heated and rarefied and expanding against the uterine walls. During the intervals between the "pains," when the hand can be inserted between the fœtal head and the cervix, there is a free interchange between the external and the intra-uterine air, and the temperature of both is nearly equal. As soon, however, as a slight movement of the fœtal head or body occurs the uterus can be felt to slightly dilate or become expanded, and the patient will say that she is "getting a pain." The explanation of this series of acts is that when by the voluntary or involuntary movement of the fœtal head or body, the air-channel is closed, the intra-uterine air becomes heated and expands, dilating the uterus, and impressing on the nerves the necessity of muscular counter-pressure.

When this counter-pressure is exerted it is transmitted through the intra-uterine air to the fœtus, just as before the rupture of the membranes it is transmitted through the liquor amnii. The effect in both cases is the same—to transmit muscular force uniformly and indirectly to the fœtus and favor its exit in the line of least resistance.

In order, however, to overcome the external resistance to the expulsion of the fœtus, it is necessary that the force of the intra-uterine air should be greater than the ordinary atmospheric pressure. This is accomplished by the abdominal muscles, contracting and compressing the intra-uterine air into a smaller space. Its tension is thereby increased, and when it expands outwardly and the conditions are favorable, the fœtus is moved gradually toward the outlet and finally expelled, notwithstanding the muscular and atmospheric resistance which impeded its exit. Without this utilization of air it would be as impossible for the uterus to expel its contents as it would be for the bronchial tubes to expel their excess of secretions by their own contractions. In both instances air is utilized to furnish the final necessary expulsive force.

While the intra-uterine air is thus essential in completing delivery, and is therefore a beneficent agent, it is under certain circumstances a source of danger to both the mother and the child.

If the head is impacted, or the perinæum is rigid, the expansive force of the intra-uterine air, when subjected to intense compression, as during a series of prolonged pains, will either drive the head through the perinæum, or rupture the uterus, or produce such undue weakening of its fibers as to conduce to future disease. This statement will be regarded with incredulity by many; but when they reflect upon the "catapult-like force" with which the head or the shoulders are sometimes driven through the perinæum, they will see that the momentum which produced that result is the product of a sudden expulsive force, altogether different from slow muscular contraction. The classical symptoms of rupture of the uterus, "the sharp tearing sound, the flattening of the abdomen, the ability to feel the fœtal parts, the retrocession of the head," all point to the sudden exit from the uterus of air under tension.

The danger to the child consists in its subjection for a prolonged period, or for a succession of brief periods, to a pressure greater than an atmosphere. The evil results of such a pressure have been so often shown in men who work in caissons, etc., that its danger to the fœtus will be readily admitted.

Some recent observations lead me to believe that this hitherto unrecognized danger to mother and child can be materially lessened by the introduction into the uterus during labor of a slender pliable tube, by which the inner and outer pressures can be equalized when necessary, and by which the inner pressure can be lessened whenever it appears to be so excessive as to threaten injury.

Hegar's statement, quoted in the *New York Medical Journal* of June 27th, that the obstetric mortality of Baden is about the same under antiseptic practice as it was forty years ago when antiseptics were unknown, shows that the chief danger in childbirth is from some other than external sources, and will, I trust, aid in directing attention to the functions and the dangers of intra-uterine air, especially during parturition.

P. McCahey, M. D.

Book Notices.

An Introduction to the Diseases of Infancy. By J. W. Ballantyne, M. B., F. R. C. P. E., Lecturer on Diseases of Infancy and Childhood, Edinburgh School of Medicine, etc. With Colored and other Illustrations. Edinburgh: Oliver & Boyd, 1891. Pp. viii–242.

Diseases peculiar to the infant are few in number, but those modified by the condition of infancy are many. The author adopts the wise plan of not attempting a full description of such diseases, but simply notes the differences in pathology, symptomatology, and treatment. Much attention is given to the anatomy and physiology of infancy, upon which the author's extensive investigations have especially qualified him to speak. The work is a valuable addition to the literature of infantile disease.

BOOKS, ETC., RECEIVED.

On the Necessary Precautions to be taken to obtain the Most Benefit from the Climate of Nice and the Riviera. By Thomas Linn, M. D. Nice, 1891. 12mo, pp. 32.

"Joe Brown," Doctor on Alcoholism, its Cause and Cure. New York: E. Scott, 1891. Pp. 5 to 105. [Price, 50 cents.]

Medical Publications, Harvard Medical School, 1890.

Unique Case of Cæsarean Section. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children.*]

The Use of Segmented Rubber Rings in Intestinal Anastomotic and other Operations. By A. V. L. Brokaw, M. D., St. Louis, Mo. [Reprinted from the *International Journal of Surgery.*]

Abdominal Surgery at the Kensington Hospital for Women. By Charles P. Noble, M. D., Surgeon in Charge. [Reprinted from the *Transactions of the Philadelphia County Medical Society.*]

History of a Case of Sarcoma of the Genu of the Corpus Callosum, presenting Symptoms of Profound Hysteria; with Autopsy. By Charles A. Oliver, M. D. [Reprinted from the *University Medical Magazine.*]

Acid Bichloride of Mercury as an Antiseptic. Its Application to Surgical Practice. By Ernest Laplace, M. D. [Reprinted from the *Philadelphia Hospital Reports.*]

A Unique Case of Stab-wound of Thorax and Abdomen; Recovery. By A. V. L. Brokaw, M. D., St. Louis, Mo. [Reprinted from the *St. Louis Courier of Medicine.*]

Pyosalpinx in Relation to Sterility in Women. By Dr. C. P. Noble. [Reprinted from *Annals of Gynæcology and Pædiatry.*]

New Methods of performing Pylorectomy, with Remarks upon Intestinal Anastomotic Operations. By A. V. L. Brokaw, M. D., St. Louis. [Reprinted from *Transactions of the Missouri State Medical Association.*]

The Peroxide of Hydrogen; its Uses in Abdominal Surgery. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *Medical News.*]

Education and Power. I. Science and Vitality. II. The Increase of Power. III. How to make the Schools serve us. By Morrison I. Swift, Ashtabula, Ohio.

Second Annual Report of the Trenton Eye and Ear Infirmary, Trenton, N. J. April 1, 1890, to March 31, 1891.

Third Biennial Report of the North Carolina Board of Health for the Years 1889 to 1890.

Kali Chloricum. A Lecture by Charles S. Mack, M. D., Ann Arbor, Mich. [Reprinted from the *Hahnemannian Monthly.*]

Extirpation of the Kidney for an Enormous Myxo-sarcoma in a Child aged Three Years and Eight Months. By A. V. L. Brokaw, M. D., St. Louis. [Reprinted from the *Medical News.*]

Wiring of the Vertebræ as a Means of Immobilization in Fracture and Pott's Disease. (Read before the Texas State Medical Association.) By B. E. Hadra, M. D., Galveston, Texas. [Reprinted from the *Times and Register.*]

Étude clinique sur les déterminations cardiaques de la fièvre typhoïde. Par le Dr. L. Galliard, médecin des hôpitaux. [Extrait des *Archives générales de médecine.*]

Die Untersuchung des Auswurfs auf Tuberkelbacillen. Von Dr. med. Eugene Czaplewski. Vorstand des Laboratoriums der Dr. Brahmer'schen Heilanstalt für Lungenkranke zu Görbersdorf i. Schl. Mit 1 Tafel in Farbendruck und mehren in den Text gedruckten Holzschnitten. Jena: Gustav Fischer, 1891. Pp. vii–124.

Proceedings of the Florida Medical Association. Session of 1891.

The Surgery of Cleft Palate. By M. B. Ricketts, M. D., Cincinnati, O. (Read before the Mississippi Valley Dental Society, Cincinnati, March, 1891.)

Clinical and Pathological Observations on Cases of Injury of the Cervical Spinal Cord. By C. A. Herter, M. D., New York. [Reprinted from the *Journal of Nervous and Mental Disease.*]

Linear Craniotomy (miscalled Craniectomy) for Microcephalus. By W. W. Keen, M. D., Philadelphia. [Reprinted from the *American Journal of the Medical Sciences.*]

The Indications for Early Laparotomy in Appendicitis. By William W. Keen, M. D., Philadelphia. [Reprinted from the *Annals of Surgery.*]

Third Annual Report of the Health Department of the City of Mansfield, O. For the Year commencing March 1, 1890, and ending February 28, 1891. By R. Harvey Reed, M. D., Health Officer.

La metafisica y las ciencias naturales. Commentarios á los discursos leídos por D. Marcelius Menéndez Pelayo y d'Alejandro Pidal y mon en la real Academia de ciencias morales y politicas en 15 de Mayo 1891 sobre Los origines del criticismo y del escepticismo y especialmente de los precursores Españoles de Kant. Por Doctor Gaspar Gordillo Lozano. Madrid: Enrique Maroto y Hermano, 1891. Pp. 5 to 71.

Reports on the Progress of Medicine.

GENERAL SURGERY.

By MATTHIAS L. FOSTER, M. D.

Vesical Calculus.—The *British Medical Journal* for May 9, 1891, contains four very good papers devoted mainly to litholapaxy, three of which are by surgeons resident in India, where the opportunities for observation of vesical calculus are superior to those of any part of Europe or America.

The first paper, by Surgeon Major Freyer, is mainly statistical, regarding 168 recent cases of vesical calculus, in patients of all ages, from two years to ninety, of which 165 were dealt with by litholapaxy. Of the litholapaxy cases, sixty-six were in male children under fifteen years of age, ninety-six in adult males, and three in adult females. The number of days spent in the hospital or under treatment varied in the case of adult males from two to twenty-eight days, in the case of children from two to twenty-one days, in the case of the females three, four, and five days. Usually they were kept in the hospital two or three days more than was absolutely necessary. The weight of the dried *débris* of the calculi averaged in the adult males 242 grains, in the children 108 grains, and in the females 435 grains. The weight of the largest and of the smallest removed from the adult males differed only slightly from those taken from the children. In one case the operation had to be divided into two sittings because of a second stone which could not be grasped at the first sitting, and was thought to be probably impacted at the mouth of the ureter.

Cystitis was not an uncommon complication, but the removal of the stone was usually followed by a spontaneous cure of this condition. In five cases urethrotomy was performed for impacted urethral calculus. When the prostate was enlarged there was frequently considerable bleeding, and fragments of the stone became entangled in clots of blood in the bladder and were sometimes with difficulty removed with the aspirator. Usually an anæsthetic was administered, but in suitable cases this was omitted.

Regarding the female patients, the main point of interest is that one of them was in the seventh month of pregnancy at the time of operation, and a miscarriage did not result.

Among the children, five were under two years and a half of age. A No. 6 cannula passes readily through the urethra of a child of that age, and the operation is easily performed with the suitable instruments.

Only three deaths occurred among all these cases—one from peritonitis, one from exhaustion, and one from pneumonia. Including the cases reported in two preceding papers, Freyer has performed 400 operations for stone in the bladder, with six deaths, a mortality of one and a half per cent., a result which, as he says, "we can scarcely expect to improve while we extend the operation to almost hopeless and moribund patients." He maintains that litholapaxy is almost universally applicable to all cases of vesical calculus, and that the dangers expected from the extension of the operation to the case of male children were purely imaginary and had no foundation in fact.

Surgeon Cunningham remarks that patients in whom a recurrence takes place after litholapaxy return for relief very soon after the symptoms set in, because they have little or no dread of the operation. He considers litholapaxy infinitely safer than any form of lithotomy for suitable cases, which he estimates at ninety per cent. of all cases. Although larger stones have been successfully removed by litholapaxy, he is inclined to favor suprapubic lithotomy for stones above six ounces and a half in weight, but thinks that this operation should be reserved for these exceptionally large stones, and that lateral lithotomy should be preferred in cases of smaller stones, where, for any reason, litholapaxy is contra-indicated.

Surgeon-Major Gimlette furnishes an account of forty successful cases of litholapaxy in boys as affording another proof of the superiority of this operation over other methods of treating stone in the bladder, even in the youngest children. In the great majority of cases immediate relief was afforded, and the boy, if allowed, would be up and playing about in two or three days.

Mr. Edwards presents an extremely weak argument for the abandonment of the name litholapaxy, which was given to the operation by its originator, the late Professor Bigelow, and for the substitution of the old term lithotrity, which was the name of the operation, long since superseded, of crushing the stone and allowing the fragments to escape as best they might with the urine. He would restrict the term litholapaxy to the evacuation of small stones by means of the evacuator without crushing them.

When litholapaxy is impracticable Mr. Edwards favors, in almost all cases, the suprapubic operation of lithotomy to the lateral. He reports four deaths in a series of forty consecutive litholapaxies, and is probably correct in attributing this high percentage very largely to his neglect of antiseptic precautions. He has now begun to wash the bladder out, after the removal of the stone, with a solution of boric acid.

Cerebral Abscess.—Mr. Southam reports (*Brit. Med. Jour.*, May 9, 1891) an interesting case of traumatic cerebral abscess in a boy thirteen years of age. The abscess resulted from a punctured wound of the skull two inches above the left orbit and formed a large cavity in the frontal lobe. The skull was trephined at the seat of injury, the fragments of bone were removed, and the cavity was syringed out with a boric-acid solution. On the morning of the fifth day after the operation the dressings and the pillow on which the boy lay were found to be saturated with a clear watery fluid. This fluid continued to discharge very freely for four days, then gradually diminished, and after the twelfth day ceased. The purulent discharge then recurred and required the retention of the drainage-tube for several weeks. Perfect recovery ensued.

The discharge of cerebro-spinal fluid came, apparently, not from the subarachnoid space, but from the lateral ventricle, with which the abscess cavity must have communicated, for when the wound was exposed the fluid could be seen to well up through the drainage-tube, evidently coming from the interior of the brain at a depth from the surface. The amount of fluid which escaped from the wound must have been greatly in excess of that normally secreted by the lining membrane of the ventricles, and it seems probable that the neighboring inflammation induced supersecretion, the lateral ventricle became distended, its wall gave way, and a communication was thus formed between it and the abscess cavity in the frontal lobe. As healing took place and the abscess contracted, the communication became closed and the escape of fluid ceased.

Rupture of the Gall-bladder.—Lane (*Lancet*, May 16, 1891) reports a case which illustrates the influence which bile exerts upon the peritonæum when retained in a free state in a considerable quantity in the peritoneal cavity.

The patient, a lad eighteen years old, was admitted into Guy's Hospital five weeks after having a violent blow in the upper part of the abdomen. For a day or two after the injury he suffered great pain, and his abdomen soon began to increase in size. This distention became so great as to finally render him unable to take food. The discomfort was so great that he could not lie on his back. Several times he vomited a dark-brown liquid. When admitted he appeared moribund. An incision was made below the umbilicus, and about three gallons of fluid, very deeply stained with bile, were removed. No irregularity or adhesion could be felt along the margin of the liver. The gall-bladder was empty. About a pint of deeply stained fluid escaped through the drainage-tube, but within twenty-four hours the discharge had ceased and the glass tube was removed. After the operation no fluid re-collected in the general peritoneal cavity, but a collection formed below the liver, which proved to be an adherent and distended gall-bladder, which was drained.

The important fact to be learned from this case is that a considerable quantity of bile may remain free in the abdomen for five weeks and produce no other symptom than a serous effusion, the deleterious influence of which appeared to be purely mechanical, as all discomfort disappeared at once and permanently with the removal of the mixture of bile and serum.

Antiseptic Injections in Acute and Chronic Arthritis of the Knee.—Tachard (French Surgical Congress, *Rev. de chir.*, May, 1891), having lost a patient in 1872 in consequence of arthrotomy for purulent arthritis, has since that time employed antiseptic injections. He contends that the nature of the liquid employed is important. For acute arthritis he prefers Van Swieten's solution of perchloride of mercury; for the chronic form, a five-per-cent. solution of carbolic acid. The synovial cavity should be distended with the fluid for a certain length of time, and should then be completely emptied. He reports two cases treated in this manner with good success.

Sarcoma of the Submaxillary Gland.—Dubreuil reports (*Gaz. hebdom. d. sciences méd.*, May 2, 1891) the removal of a sarcoma of the submaxillary gland from a man forty years of age. The removal was rather difficult on account of the close adhesions which existed between the tumor and the surrounding tissues, but the interest of the case centers in the pathological report. The tumor was hard, lobulated, not well circumscribed, and had invaded the neighboring muscular tissue. It was largely fibrous, with scattered cellular islets, which at first sight gave the idea of an epithelial tumor, but was really composed of connective-tissue cells, forming a sheath around the blood-vessels. The stroma was formed by connective-tissue fibers intermingling in all directions and not fascicular; the scattered cells were of the stellar type. In the oldest parts of the tumor the stroma formed a vast extent uninterrupted by cellular masses, and the tunics of the blood-vessels were excessively thickened. The cellular masses were determined not to be epithelial formations for several reasons. In the midst of the cells were always found one or more orifices of blood-vessels, whence proceed thin connective-tissue partitions which subdivide the cellular mass. From the edges of the fibrous ring connective fibers proceeded, which insinuated themselves among the cells and rejoined the fibers emanating from the vascular trunk. The cells had a very pale and delicate protoplasm. The innermost belonged to the cellular type, while those external and those surrounding the vascular orifices were lengthened by reciprocal compression. The cellular masses presented sometimes in their centers foci of granular fatty degeneration. The study of the development of those parts which bordered the remainder of the gland seemed to show that the change began as an interstitial sclerous alteration, and that the cellular masses appeared secondarily in this sclerous tissue. He names this neoplasm a hard, alveolar, perithelial sarcoma.

Angeioma of the Orbit.—Orbital angeiomata are rare; about sixty cases have been reported. Exophthalmia coincides with the existence of a nævus at the side of the eyelid, which forms a tumor, at first reducible, but subsequently, after it has undergone a fibrous transformation, irreducible. The following case, reported by Panas (*Rev. de chir.*, May, 1891), is peculiarly interesting on account of spontaneous infection occurring in the course of typhoid fever:

A little girl of seven had had since the age of two years an angeioma of the orbit whose development progressed continuously up to the age of five, when treatment by electrolysis and injections of aqua Pagliari was instituted. The tumor seemed to sink into the orbit, but the exophthalmia persisted. Vision was good. When seven years of age she was seized with typhoid fever, and in the third week suddenly presented all the signs of phlegmon of the orbit. M. Panas refused to enucleate the eye at this time because he believes, contrary to von Graefe, that as long as the patient is suffering from a general infection enucleation exposes to meningitic accidents. A month later he operated, and found a tumor adherent to the optic nerve. This he removed and found it made up of a hard mass, including at the center a focus of suppuration. In the pus he found the bacillus of Eberth exclusively, and this, injected into the vitreous body of a rabbit, determined suppurative hyalitis containing the bacillus of Eberth.

Exploratory Opening of the Spinal Canal.—Bazy (*ibid.*) reports two cases. He maintains that in a certain number of cases exploration is necessary for diagnostic purposes. Special instruments are not necessary; the different osteotomes which we possess suffice. When the dura has been opened it is necessary to close it perfectly without drainage, to avoid waste of the cerebro-spinal fluid.

A New Method of Intestinal Grafting.—M. Chaput has covered large intestinal perforations, measuring three centimetres by two, in a dog, by suturing some plates made of five or six layers of iodoform gauze to the circumference of the orifice (*ibid.*).

These plates remain in place many weeks, but, as they are infected on their deep surface, they finish by eliminating themselves in the intestine. They protect the peritonæum the better because the omentum adheres to them immediately, and forms a second organized and definitive protective bed of many millimetres of thickness. It is, in short, a temporary graft which permits the omentum to thicken and organize conveniently. The gauze arrests the migration of microbes toward the peritonæum by its areolar structure, by the antiseptic action of the iodoform, and also by the phagocytosic phenomena which are produced in the interior of the meshes. One finds in these, leucocytes which continue to live, thanks to the immediate vicinity of the omentum, and of the intestinal tunics which convey their prolongations even into the depths of the iodoform shield. This method the author considers superior to that of omental grafts because, when healthy, the omentum is too feeble to constitute a sufficiently resistant covering. He thinks that this procedure could be applied to all intestinal perforations, and that it would be advantageous to employ this grafting in the generality of operations upon the intestines. He has three times employed bandelettes of gauze to cover lines of sutures, and has had good success each time.

Laparo-enterotomy for Intestinal Obstruction due to an Intestinal Calculus.—Thiriar reports this interesting case (*ibid.*). A woman, fifty-one years of age, had been greatly constipated for a year, and was finally seized with the symptoms of intestinal obstruction. A painful point was located to the left of and above the umbilicus. After the obstruction had lasted ten days, laparotomy was performed. The peritoneal cavity contained a large quantity of bloody serum. A hard, mobile tumor was found, drawn out, and determined to be a calculus as large as an egg imbedded in a pocket in the intestine. This last had been formed by the contraction of the intestine at the two extremities of the calculus so as to form two sphincters which prevented it from moving either way. An incision was made into this pocket and the stone was expelled. The wound was then carefully disinfected, and closed by means of two rows of sutures, one uniting the mucous surfaces, the other the peritoneal. Czerny-Lembert stitches of No. 1 catgut prepared with chromic acid were employed. The intestinal pocket contracted until it had not the thickness of the little finger, but this was deemed spasmodic contraction, and it was expected to disappear spontaneously. The intestine was replaced in the abdominal cavity and the abdominal wound was closed. The operation lasted an hour. The patient had three stools during the next few hours, and at the end of four days she was pronounced cured.

The calculus had the form and volume of a small egg; it weighed fourteen grammes and had forty-two millimetres in its greatest, twenty-six and twenty-eight millimetres in the two other diameters. Its color was yellowish-white and brownish in places. It was composed of a central region of pure cholesterin and of stratified layers of calcareous salts and hard fæcal matter.

Thiriar believes that this was a biliary calculus which had escaped from the gall-bladder into the intestine, and, as the patient had never had colic or jaundice, and as so large a calculus could not have traversed the common bile duct, he maintains that adhesions must have been produced between the gall bladder and intestine, and that the calculus ulcerated its way through the walls and fell into the intestine.

Campenon at the same time reported a similar case (*ibid.*), but with not so fortunate a result. The obstruction was found a little below the duodenum, a calculus inclosed in a pocket formed in the same way as in Thiriar's case. The intestine was opened as in the other case, but the stone had to be extracted and the pocket did not retract; it remained flabby and gaping. The wound was sutured in the same manner as in the preceding case. On the third day the patient died of peritonitis.

At the autopsy the intestinal sutures were found to be in good condition. It was established that the seat of the calculus was forty centimetres below the duodenum. The duodenum communicated by a large perforation with the gall-bladder, or rather with a cavity corresponding to the latter, which was bounded above by the inferior surface of the liver, in front by the colon, below by the duodenum, and behind by the remains of the gall-bladder. One of the adhesions which formed the wall of this cavity had broken and permitted the escape of fæcal matter into the peritoneal cavity. This rupture may have been caused by traction during the operation, or by the peristaltic movements of the intestine.

Enterorrhaphy.—M. Chaput (*ibid.*), after objecting to the various forms of enterorrhaphy, proposes the following:

A primary row of muco-mucous sutures is inserted in the posterior demi-circumference of the intestine. A longitudinal slit three centimetres long is then made in each of the two ends, either upon the convex surface or midway between this and the mesenteric insertion. The two triangular portions thus obtained on each side are trimmed by cutting off their apexes. The muco-mucous suture is then continued around the entire circumference of the intestine and to the ends of the slits. This row of sutures is then re-enforced by two rows of peritoneal sutures.

Resection of the Pubic Bone in Suprapubic Cystotomy.—Heydenreich (*ibid.*) relates a case in which the vesical tumor was inaccessible by the ordinary operation of suprapubic cystotomy, although Peterson's rectal bag was employed. He resected the superior part of the symphysis for a distance of four centimetres, and the operation was then easily completed. Unhappily, the patient died of pyelonephritis, which had existed for some time. The resection of the pubic bone did not seem to aggravate the operation, but rather abridged its duration by the facility it afforded. It should be performed only in exceptional cases, however, where access to the bladder is difficult.

Tuberculosis of the Testicle.—Roux (*ibid.*) believes in radical extirpation of the tubercular focus in these cases before the organism is infected. To remove the testicle alone is insufficient. It is necessary to sacrifice the vas deferens and the seminal vesicle, which are almost always simultaneously attacked. His method is to first remove the testicle, isolate the vas deferens as high as possible in the inguinal canal, then place the patient in the dorso-lumbar posture and penetrate through the perinæum to the prostate. The left index finger introduced into the rectum catches the vesicle and pushes into the depth of the wound, where it is freed, divided nearly level with the prostate, and finally drawn out with the remaining portion of the vas deferens. One patient thus treated made a perfect recovery. Another had a persistent fistula. To cure this, M. Roux gave him an injection of Koch's "lymph." The next day he was attacked with tuberculous meningitis.

Miscellany.

Notes on the Operative Treatment of Uterine Cancer.—At a meeting of the Section in Obstetrics of the Royal Academy of Medicine in Ireland, held on November 28, 1890, the president of the Section, S. R. Mason, M. B., F. R. C. S. I., read a paper on this subject. Having alluded to the negative treatment pursued some years ago and then to the treatment with Chian turpentine, he proceeded to describe the various operative procedures practiced in the present day, as well as the cases suitable for each. He expressed an opinion adverse to Marion Sims's operation on account of the difficulty of judging the amount of sloughing action which would take place, and strongly approved of the removal of the entire or portion of the uterus for cancer of that organ. Two cases of operation for the removal of the vaginal and supravaginal portions of cervix were described; both terminated most favorably; the first patient, having been operated on nearly three years ago, now remained in perfect health.

The removal of the entire uterus by Freund's method and the vaginal operation were described, and a case of the latter operation was noted where catch-forceps were largely employed to secure the vessels in the broad ligament. The relative merits of the operations were then compared, and in suitable cases where the cancerous disease could be removed by it the supravaginal method was recommended as being the best.

Dr. A. Smith said it seemed to him that the question as to how and when a case should be operated on was always one of diagnosis. During his time in the Rotunda Hospital he had had several cases of carcinoma; and, in view of the desirability of operating, he had divided them into certain and doubtful cases of carcinoma. The first class consisted of the cases in which there were both clinical and microscopic indications of carcinoma. The second class he found it necessary to subdivide into two others—one being a class in which there were clinical symptoms of carcinoma, while the microscope failed to indicate it; and the other being one in which the clinical symptoms were perfectly benign, but typical cancerous conditions were shown by the microscope. As regarded the first principal class of cases of the cancerous conditions where extensive operative interference was not possible, palliation only could be resorted to. In cases where the carcinoma was limited in extent, whether confined to the cervix or not, a point on which the desired information was as to whether there should be complete removal of the uterus or not. Statistics showed that in the majority of cases of cancer of the cervix there coexisted a very curious condition of the mucous membrane known as sarcomatous degeneration. It was therefore recommended that in every case there should be complete removal of the uterus.

Dr. Bagot stated that there were a few points regarding the operation treatment of carcinoma to which he would like to draw attention. First, as to the simple amputation of the portio vaginalis. No one would now dream of doing it as a radical operation even for an apparently very limited carcinoma of the vaginal portion. As to the supravaginal amputation, or high operation of Schröder, Dr. Mason had spoken of it as being the proper procedure in cases where the carcinoma was limited, or rather, he should say, apparently limited, to the cervix, and stated, as one of his reasons, that this operation was so much easier and less dangerous than vaginal hysterectomy. Now, so far as Dr. Bagot knew, the latest statistics, both with reference to the immediate mortality after the operation, and regarding the period of immunity before the return of the disease, did not quite justify this statement.

The latest statistics that Dr. Bagot had seen were those given by Dr. Pozzi in his *Traité de gynécologie*, 1890, where it was stated that the operation of supravaginal amputation was followed by a mortality of not less than 11 per cent. in the hands of good operators both in France and in other countries, while the mortality after vaginal extirpation in France was, according to the same writer, about 5·88 per cent. Leopold, in Dresden, had performed 80 vaginal hysterectomies with a mortality of 5 per cent., not losing a single patient out of the last 52 cases of this series. Dmitri de Ott had performed 30 vaginal extirpations without a death. The reason that supravaginal amputation was preferred in cases where the disease appeared to be limited to the cervix by some operators, of whom John Williams was foremost in England, was because the various forms of cervical carcinoma usually tended to spread outward toward the vagina and parametrium, etc., rather than upward toward the body of the uterus. This was true in the majority of cases; but he maintained that it was impossible to determine with certainty either before or during the operation to what height the disease had spread. Cases had been published by various observers proving this. Pozzi, for instance, had performed a vaginal extirpation for an epithelioma apparently limited to the cervix; but after the operation it could be seen that a narrow strip of carcinomatous growth had extended up along the mucous membrane to the fundus. Cases of a rarer form of extension of the carcinoma had been published by Ruge, Duvelius, Abel, and others, where they found isolated nodules of carcinoma in the body of the uterus, due to metastasis starting from a small epithelioma of the cervix.

In addition to these facts there was the point brought so powerfully to bear on the point by the speaker's former colleague, Dr. Alfred Smith—namely, the results of Abel and Landau's researches on the alterations met with in the mucous membrane of the body coincident with epithelioma of the cervix.

Now, as to Freund's operation, Dr. Bagot thought that Dr. Mason had hardly brought clearly before the meeting the necessary indications for the performance of this operation; for no one would think of performing this, an operation followed by a mortality of over 67 per cent., if he could have recourse to a vaginal hysterectomy.

This operation was, so far as he could judge, to be performed only when the uterus was too large to be extirpated *per vaginam*, or when there was great fixation due to old perimetritic adhesions, as the uterus consequently could not be drawn down. Under such circumstances one had to choose between Freund's abdominal and Martin's abdomino-vaginal, or mixed, method of operation, or else have recourse to removal of the uterus by means of the juxtasacral incision of Wölfler or the sacral incision, as in Kraske's operation for extirpation of the rectum. From what Dr. Bagot had read about it he would, under these circumstances, prefer extirpation by means of Kraske's method or some modification of it.

With regard to the degree of fixation, it was often very difficult to determine whether this was due to a carcinomatous infiltration of the ligaments or to a parametritis, for, as the carcinoma spread, it was always preceded by a zone of inflammatory infiltration.

One should, therefore, make a most careful examination under narcosis of the broad and utero-sacral ligaments both *per rectum* and *per vaginam*. As an example, he might mention the following case: A woman had been sent into the Rotunda, suffering from an epithelioma of the cervix. On first examination, it seemed a suitable case for total extirpation; but, at a subsequent examination under ether, one could feel that the utero-sacral ligaments had been attacked by a nodular infiltration, like beads in a necklace, and some enlarged lymphatic glands could be made out. There was a point which occurred to his mind as to whether an operation was justifiable in such a case as the one he had just alluded to—namely, that if surgeons considered it justifiable to remove a breast, when the axillary glands were enlarged and had to be enucleated, he did not see why such a case should be abandoned, for now the juxtarectal, the juxtasacral, and the preliminary extirpation of the sacrum by Kraske's method had opened up a new way by which the parametrium and surrounding structures could be more easily extirpated along with the uterus. Lastly, there was a point of the greatest importance—he meant the early diagnosis of carcinoma. He thought that in all cases where there was the slightest suspicion a portion of the growth should be submitted to a competent pathologist.

The chairman remarked that in the first of the president's cases the woman was stated to have been only twenty-three years of age and to have had no children. He had not heard it stated that a microscopic examination was made, and therefore he felt at liberty to entertain a doubt that she had carcinoma. He had looked over authorities as regarded cases of total extirpation in which the disease had been only supposed to affect the vaginal portion of the cervix, and had found that Leopold, in seventy-eight cases of carcinoma, removed the whole uterus in fifty-seven of them in which the cervical portion was involved. Dr. Smith had said that in a large number of cases the first stage was a sarcomatous degeneration of the mucous membrane. He had at present a case in which he had scraped out the uterus carefully and got no indications of cancer; nevertheless the woman was bleeding and losing flesh, and he believed he would have to deal with the case on the clinical symptoms alone. He was surprised to hear that the president considered supravaginal amputation to have afforded better permanent results than total removal; but, judging by the reports of Leopold's cases and those of others that he had been looking over, he hardly thought that they would have resorted, in two hundred or three hundred instances, to total extirpation of the uterus if they had thought they could get as good results from the supravaginal operation, which was an easier one to perform. He considered it to be practically almost settled that, unless the diagnosis of carcinoma of the mucous membrane was excluded by positive observation of matter scraped out from the uterus, one's duty, in cases of carcinoma of the cervical portion, was to extirpate the whole uterus. A more difficult question to answer was, What extent of fixation counter-indicated operative interference? Slight fixation did not. Dr. Bagot had said the posterior ligaments were those which gave the greatest indication of how far the cancer had gone. Hoffmeir, who had written on the operative treatment of cancer, considered that infiltration of the broad ligament might go a great deal further without indicating carcinoma. If the ureters could be guarded by the introduction of catheters, the carcinomatous portions of the uterus could be extirpated. Such precautions would be essential in any resection of the posterior wall of the bladder, and, if adopted, the bladder could be cut with safety; but any one who could not sew up the bladder should not attempt the operation. He concurred that the gynæcologist ought, if possible, to be his own pathologist, and he ought to be a good microscopist.

The president, in reply, said there could be no comparison of results between the mortalities that occurred in the cases of particular operations and the general mortality. If they took all together they found that the mortality from the supravaginal operation was less than that from the total removal of the uterus. Both of the cases that he had brought forward had been examined microscopically, and it had been pronounced that there was carcinoma in each. Dr. O'Carroll, who examined the first, had said there was carcinoma starting in some of the glands of the cervix.

The Anal Reflex.—Rossolimo (*Neurologisches Centralblatt*, May 1, 1891) says this reflex consists in a contraction of the anal sphincters in response to a stimulation of the skin and mucous membrane of the anus. It is invariably present in man in health. The branches of the inferior hæmorrhoidal, pudendal, and perineal nerves, on which this reflex depends, are connected with the third and fourth roots of the sacral plexus, which spring from nerve cells in the conus medullaris. This reflex can be obtained in the dog as well as in man, and Rossolimo cut the spinal cord across at different levels from above downward; whenever the lumbar enlargement was cut across at the level of entry of the third sacral nerve, the anal reflex suddenly disappeared, from which it follows that the cells of the spinal cord which are connected with this reflex are situated in the third quarter of the lumbar enlargement, reckoning from above downward. In another series of experiments the lumbar enlargement was exposed, and the sacral roots were cut one at a time. By this means it was proved that the anal reflex depended upon the integrity of the third and fourth sacral roots. This reflex therefore has its seat in the cord lower than any other reflexes. To obtain the anal reflex the patient may be either standing, the operator separating the glutæi, or lying on his side with the legs drawn up. The skin and mucous membrane of the anus may be stimulated by stroking with a pin, a feather, a piece of paper, or some suitable object. The reflex is shown by a contraction of the sphincter ani externus, and if it is very strong there is a drawing in of the whole anus, and even sometimes a contraction of the glutæi. In women the testing of this reflex may be conveniently combined with a gynæcological examination. The author has examined this reflex in a great many conditions, and he comes to the following conclusion: It is increased in some cases of neurasthenia, in cases of myelitis high up in the cord, and in conditions in which there is a general exaltation of sensations. It is lost in multiple neuritis affecting the sacral plexus in some cases of tabes, and in myelitis of the lower part of the cord, and in these cases there is generally also anæsthesia of the rectum, anus, and urethra. It remains normal in functional derangements of the bladder, the rectum, and the sexual apparatus.—*Supplement to the British Medical Journal.*

The Boston Lying-in Hospital.—The *Boston Medical and Surgical Journal* says: The great changes which have been effected in the equipment and management of the Boston Lying-in Hospital during the past year have induced the trustees to publish an extended account of its past history and present condition, in connection with their fifty-eighth annual report for 1890.

The hospital was incorporated in 1832, and was at first situated on Washington Street, near the present location of Waltham Street. In 1853 it was removed to a larger building on Springfield Street, but at the end of a year was obliged to discontinue its work for the time, on account of an insufficient pecuniary support.

Its funds were, however, wisely managed, and at the end of about twenty years it was enabled to take a fresh and vigorous start. It was reopened in its present situation on McLean Street on January 1, 1873, and from that time to this its history has been that of a constantly increasing prosperity and usefulness.

In 1873 the work was carried on in a single small dwelling-house, which was but slightly altered from its original design, and contained but eighteen beds. One hundred and sixty patients were received and treated during the year. In 1877 the work had increased so much that it was necessary to enlarge the building by the purchase of the adjoining house. In 1887 the growing usefulness of the hospital compelled the purchase of two more houses, but it soon became evident that so large a clinic could not any longer be properly or economically administered in so inconvenient and cramped a building.

The capacity of the hospital was insufficient to meet even the existing wants, and the demands upon it were constantly increasing. Larger accommodations for patients, nurses, employees, and house-officers had become necessary, unless the work of the institution was to be curtailed.

The trustees, believing that the time had come to meet these demands, and regarding the present location of the hospital as an excellent one for the institution, had plans made for the alteration of the four houses on McLean Street, constituting the present block belonging to the corporation, which would combine them into one hospital building, with wards, and reception, isolating, and operating rooms, all admirably adapted to the improved methods of the present day, and sufficient to meet its anticipated needs for many years to come. The plans included the erection upon the rear of the land of adequate buildings, in connection with the hospital, for the kitchens, laundry, and servants' quarters. An adjoining property was purchased at the same time, which, with slight changes, will be directly connected with the main hospital, and will supply the necessary requirements of a house for general administrative and out-patient purposes.

The work of improvement and extension has been begun, and will, it is expected, be completed in October or November of the present year, when the corporation will have the largest and best equipped hospital of the kind in this country.

In order to defray the expenses of the rebuilding and improvements, a fund of one hundred thousand dollars was sought. In the space of a few months the friends of the institution quietly contributed this generous sum, and at the present date welcome and necessary additions are still making to the amount. Annual subscriptions to meet the increased running expenses are also desired.

Early in the year 1890 the trustees further decided to make a radical change in the medical care of the hospital, and to adopt the principle of continuous service. With this end in view, it was decided to place the hospital in the charge of one visiting physician, to be assisted by an assistant visiting physician and by three physicians to out-patients.

The adoption of this plan has been followed by an increased efficiency in the medical management of the hospital, and the arrangement has proved highly satisfactory, both to the trustees and to the medical staff.

The training school connected with the hospital has also witnessed changes looking to an improvement in the character of the instruction given. Instead of one course of lectures, given during the winter season, two courses of twenty lectures each were given by the members of the medical staff. One of these was in the summer and autumn, the other in the winter and spring. By this arrangement the whole subject of obstetric nursing is taught twice a year, thus providing that all the nurses shall be able to attend at least one full course of lectures.

The time required for obtaining the diploma has been changed to six months for graduates of recognized training schools and fifteen months for non-graduates. The office of director of nurses was also created.

The annual report of the visiting physician for 1890 is of especial interest from a more strictly medical point of view. The statistics which it details certainly furnish convincing evidence of the advances which have been made in midwifery in recent years.

During the year, one thousand and thirty-nine (1,039) women were delivered under the care of the hospital, five hundred and nine (509) of whom were attended in the wards, and five hundred and thirty (530) at their homes as out-patients. In spite of the many desperate cases which are sent to the hospital, and the squalid and neglected class of women who are treated as out-patients, but one of the mothers was lost, and that a woman who entered moribund after many eclamptic seizures, and died within a few hours, the baby being saved. This record is certainly one extremely creditable to those in charge.

The Pneumo-therapeutic Institute of Brussels.—At a meeting of the Philadelphia County Medical Society, held June 10, 1891, Dr. A. A. Eshner read the following paper, prepared by Dr. Hovent, of Brussels:

Last summer I received a visit from Dr. S. Solis-Cohen, with whom I had already been corresponding on the subject of pneumo-therapy. I was gratified by his expressions of astonishment on inspecting the Pneumo-therapeutic Institute. I also felt a pride in being able to teach something to a *confrère* from the country whence progress in every science comes to us.

At the request of my guest of some hours, I shall endeavor to describe the establishment with which I am connected, briefly relate its history, and indicate the physiological and therapeutic actions of air-baths.

In 1879 a number of prominent Belgians who had undergone successful aero-therapeutic treatment at Coutrexéville, a French spa, determined to establish an institution for a like purpose at Brussels, and accordingly invited Dr. Tamin Despalles, under whose care they had recovered, and who was already well known through his works on neurology and aero-therapy, to come and create in Brussels an establishment in which all the improvements in his favorite treatment should be found. The invitation was accepted and a limited society was at once organized. The founder, however, did not long live to see the fruition of his work, and was succeeded in turn by a lecturer at the university, an academician among others, and finally by myself.

The Pneumo-therapeutic Institute of Brussels is the largest and most complete in the world; it is situated in one of the healthiest parts of the city, near a small park. As first constructed, it was intended to practice oxy-therapy, azo-therapy, aero-therapy, including compressed or rarefied air-baths, and also anæsthesia by the method of Paul Bert; afterward this last method and the azo-therapy were given up and numerous improvements were successively introduced; so that now the establishment furnishes the following services:

1. Baths of compressed or rarefied air, with or without supersaturation of oxygen gas.
2. Inhalations of compressed air with expirations into rarefied air.
3. The sale of oxygen gas in the city, the country, and even abroad.
4. Electro-therapy, by static and dynamic machines.

I have nothing to say upon these three last points. The works of S. Solis-Cohen have elucidated the treatment by pneumatic differentiation better, if with less prolixity, than any author of our continent. To make the establishment complete, it is furnished with the apparatus of Maurice Dupont, Geigel and Mayr, Hovent, Schnitzler, Solis-Cohen, Tobold, and Waldenburg. I use these apparatus, however, only upon request by my *confrères*, because I have personally ascertained that, while they are of real value, yet, as compared with the air-baths, their utility in several directions is very questionable. In this connection a recent paper by my friend Dr. Arntzenius, of Amsterdam (*Geneeskundige Courant*, 29 Juni, 1890), is of interest.

Oxy-therapy and electro-therapy are methods of treatment better known and more widely practiced in the United States than in Europe. I will therefore not consider them.

I now come to the subject which is really interesting to my American colleagues—baths of compressed or rarefied air. These are given by means of seven iron chambers of varying capacity, some being capable of comfortably containing from two to ten persons. Each chamber is very well constructed; it is supplied with several windows of glass two centimetres (three quarters inch) thick; it has a duplicated door, or, perhaps better expressed, two doors inclosing a lobby, in which the doctor, entering by the outer door, can shut himself, and, then equalizing the pressure, can open the inner door and speedily reach the patient for any purpose without great alteration of the pressure in the chamber. Another smaller door, also duplicated, serves for the purpose of handing to the patient books or whatever may be desired. Electric bell, elbow-chairs, toilet-tables, manometer, thermometer, hygrometer, etc., are all at hand.

From the chamber so described emerge six pipes leading to the underground tanks of 1, compressed air; 2, rarefied air; 3, nitrogen; 4, oxygen gas; the last two pipes are for the purpose of purifying the air, of which I shall soon speak. Each of the first four pipes is attached to a little tank which permits of the measurement of the quantity of air, nitrogen, or oxygen, introduced into the chamber, or the quantity of air removed.

The large tanks in which the air or gas is compressed, or rarefied, are ten in number. Each holds several thousands of litres. The compression or the rarefaction of air or gas is obtained by means of a gas engine of eight-horse power. The tanks will bear seven or more atmospheres of pressure, or a corresponding degree of rarefaction.

The manipulations are as follows: If it is desired to place the patient in a chamber, and the pipe connecting the chamber with the tank of compressed air, for instance, is opened, this compressed air rushes in; its quantity can be regulated according to circumstances. The reverse takes place if rarefied air is to be used; the air of the chamber rushes out and the patient remains in a relative vacuum.

One serious and even capital drawback to the employment of air-baths lies in the fact that in the course of the two hours, the duration of an ordinary sitting, the air within the cabinet soon becomes foul from the processes of respiration, perspiration, etc. The establishment at Brussels is the only one in which this inconvenience is efficaciously overcome. The air is being constantly withdrawn from the occupied chamber, and purified by being passed through several iron Wolff's jars with chemicals, to be again introduced, the same degree of positive or negative pressure being always maintained.

It may be desirable to impregnate the atmosphere of the chambers with the vapor of certain medicinal agents; it is an easy matter to place the substance to be used in the path of the air current, or more simply to put some drops of an essence on boiling water into the chambers. I frequently and successfully use pumiline essence.

This is, in brief, all that I think necessary to give a fair idea of the application of the air-baths. I shall now consider their physiological and therapeutic action.

To treat this subject at length, as it deserves, would require too much space; therefore I shall confine myself to an epitome which, I hope, will serve as an index for the reader. In English medical literature I know only of the papers of the eminent C. Theo. Williams (on air-baths; I shall say nothing of pneumatic differentiation). This is in striking and unaccountable contrast with the profuse medical literature of the continent. I shall quote from some of our authors, but chiefly from my personal experience.

The compressed-air bath more completely expands the pulmonary vesicles and increases their elasticity; the diaphragm and the base of the lungs descend lower; the respiratory process is more perfectly and less frequently performed; the peripheral circulation is less active, with some degree of decongestion of the skin and the mucous membranes (nasal, laryngeal, pulmonary, etc.); the pulse is less frequent and more full; the appetite and strength increase rapidly; the nervous system is undoubtedly invigorated. One may observe that these effects are corollaries of one another and result either from mechanical or chemical action; indeed, the oxygen of compressed air is no longer oxygen, but some form of ozone.

The rarefied-air bath has not been so well studied; nevertheless, it is employed with much success by some practitioners, who seek in it a reproduction of mountain atmosphere. It has also been recommended for rickety children when the thorax is deformed. Recently it has been used alternately with the compressed-air bath when a doubt exists as to whether a patient should be sent to the mountains or to the sea-shore. The therapeutic uses of the air-baths are very numerous, but easily deduced from the foregoing considerations.

Asthma is the principal affection for which compressed-air baths are employed. Eighty per cent. of recoveries are obtained after twenty to sixty sittings. During the first sitting the dyspnœa disappears when the pressure of air is sufficient; this result becomes permanent only after a number of sittings. I remember but one case, that of an American patient coming from Oregon, in which the paroxysms reappeared as soon as the pressure was lowered. The patient was very well while under pressure, and I have frequently kept him inclosed for eight or ten hours instead of two. I diagnosticated a traumatic medullary lesion, limited to the respiratory center.

In pulmonary emphysema the air-bath empties the vesicles and increases their elasticity, so that the dyspnœa diminishes. The first sitting is usually followed by a notable improvement. As in asthma, the success is generally striking and permanent. Pulmonary congestions, pulmonic processes preceding or following pneumonia, and hæmoptysis are cured mechanically, since the compressed air provokes anæmia of the pulmonary tissues. I have some absolutely confirmatory observations. Chronic bronchitis and bronchorrhœa are always improved, so far as concerns dyspnœa, cough, expectoration, and general health. The first effects of the treatment are an increased expectoration up to the point of completely ridding the lungs of mucus, and simultaneously a decongestion of the respiratory mucous membranes. The last action must be invoked in explaining the beneficial influence of compressed air in coryza, chronic pharyngitis and laryngitis, and in that exaggerated susceptibility of the mucous membranes, as a result of which the patient is constantly exposed to the danger of catching cold. I have recorded two cases of chronic amygdalitis, in which resection had been contemplated, and in which I obtained complete cures by compressed-air baths.

In whooping-cough, "the beneficial action of air-baths is undeniable," said Dujardin-Beaumetz. The cure is obtained after ten to fifteen sittings; and generally the child gains from one to three pounds in weight. Jaccoud charges with gross neglect the physician who does not submit his consumptive patient to aero-therapy. Oertel thinks the compressed-air treatment far superior to climatic treatment in any country. Professor Bertin (Montpellier) has recorded five cases of recovery in consumptives in the third stage.

Heart disease had long been considered the only drawback to aerotherapy, but since I have successfully treated a number of cases with cardiac complications, I no longer hesitate to treat such cases, only using certain precautions.

In catarrhal deafness compressed air effects a natural catheterism. I have not infrequently seen patients suffering with asthma or other complaints emerge from the chamber declaring that their hearing was better than for many years.

Dujardin-Beaumetz says: "Compressed-air baths are to be preferred to any other method of treating chlorosis, anæmia, diabetes, albuminuria, and gout."

Obesity, also, is favorably influenced as a result of the acceleration of organic combustion and the more active elimination of urea and carbonic acid.

In conclusion, I must add that Dr. Arntzenius has cured some cases of neurasthenia, and that I have recorded three observations of dysmenorrhœa being permanently cured by a pneumo-therapeutic course. I think these results are due to the general invigorating power of the treatment.

If I should quote all the authors who have written upon the subject of air-baths, not only in France, where the treatment was originated, but in Russia, Scandinavia, Holland, Germany, Italy, and Spain, the list would be a very long one. I wish only to note that none of them has expressed an unfavorable opinion. I am convinced that the treatment which I have expounded is entirely reliable, and I shall be happy if my paper contributes to make the medical profession of the United States acquainted with the better method of pneumo-therapy.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, July 25, 1891.

Original Communications.

FOREIGN BODIES IN THE BRONCHI.*

By J. D. RUSHMORE, M.D.,
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The following history of a case of foreign body in the left bronchus seems to be of sufficient importance to place on record in detail, and, as there does not appear to be a perfect unanimity of opinion as to the best methods of treating this class of accidents, the history of the patient and the treatment are submitted to the society for comment and criticism. This is done the more willingly as the case has had certain erroneous statements made in regard to it in the daily press, and it is proper that the medical profession should have a fairly full account furnished by some one closely and responsibly connected with its management.

G. W. B., aged forty-one years, clergyman, height six feet two inches, was referred to me by his attending physician, April 20, 1891. He states that on April 18th, while holding a cork (half an inch in widest diameter and seven eighths of an inch in length) between his teeth he threw his head back in laughing; the cork dropped back into his pharynx and choked him so that he thought he would die. Violent coughing and efforts to remove the body with his finger finally relieved his breathing. He conducted a church service on the morning of the 19th and preached a sermon, but with considerable difficulty in breathing and increasing weakness toward evening. He was a typically healthy-looking man and had never been sick. At the time I first saw him his breathing was labored but not hurried, expiration rather more troublesome than inspiration, pulse 100. Examination of his chest showed no expansion of left chest on inspiration and no motion of the scapula; vocal fremitus and chest resonance very slightly diminished. Auscultation revealed entire absence of respiratory murmur over the whole of left lower lobe, but an almost tubular breathing, without dullness, however, over upper lobe both in front and behind. Right chest normal. A mitral regurgitant murmur was also present. With the history and the physical signs the diagnosis of foreign body in the left bronchus was made, and the signs enabled me to feel certain that the cork had passed beyond the bronchus and lodged in the larger of the first subdivisions. The diagnosis was made easy in this case by the shape and size of the foreign body, and left no doubt as to its presence and exact location.

With characteristic coolness and courage the patient completed his arrangements for having an effort made to extract the cork, realizing that the accident, with or without operative interference, might have a fatal termination. On the 21st he submitted to the common treatment of inversion of the body, shaking and violent pounding on the back, with the object of dislodging the foreign body and exciting coughing to expel it; but all these attempts had no effect except to tire him and add to his already considerable and increasing weakness.

He entered the Brooklyn Hospital, and on April 23d the first operation was done—five days after the accident occurred. The patient being under the influence of ether, tracheotomy was done, the second, third, and fourth rings being cut. As the trachea was very large and the respiration not impeded enough to cause any unusual fullness of the veins, the operation was simple enough. There was only a trifling amount of hæmorrhage and no ligatures were needed. The edges of the tracheal wound were united to the edges of the skin wound with iron-dyed silk. Inspiration was now found to be much interfered with by the sinking in of the soft parts with each inspiration. It was therefore necessary to have the edges of the opening held apart by retractors. Between the time I first saw the patient and the day of the first operation I had, as far as possible, imitated, with rubber tubing and a cork, the conditions present in the patient, and found that many instruments and procedures useful for the extraction of other kinds of foreign bodies could not be employed in this case. There was a perfectly smooth cylindrical body firmly grasped by a cylindrical tube, with its lining membrane, inflamed and swollen, encroaching more or less on the upper surface of the cork, and a partial vacuum beyond it. Extraction by air pump failed because no cup could be made to go beyond the exposed surface and embrace the sides of the cork; and, while the cork could be lifted from a table and could even be made, on account of its light weight, to jump at least half an inch toward the pump as the air was exhausted, the slightest obstruction would separate the cork from the cup and cause it to drop back upon the table. It seemed reasonable, therefore, to think that it would be impossible to dislodge the cork from its situation, and that even succeeding to this extent might render it not unlikely that, dropping off in the trachea, it would find its second lodgment in the right instead of the left bronchus, and thus leave the patient in a worse condition than before, the probability of the foreign body falling into the right instead of the left bronchus being, as experience shows, as three to two. All sorts of instruments with concealed hooks were immediately found to be worse than useless, as there could be no certainty that they would not be lodged in the swollen mucous membrane instead of or before grasping the cork. Indeed, this danger seemed almost unavoidable, and, being caught in the mucous membrane, it could not be known until the instrument had torn its way out and brought with it the lacerated tissues; and it could not be dislodged even if this condition were suspected to exist. Knowing the great usefulness of the loop of piano wire, that will insinuate itself into narrow chinks that nothing else can be made to enter, it was a cause of great disappointment to find that the best-directed efforts I could make with such a loop resulted either in the spreading out of the loop on top of the cork or a turning on itself and advancing directly away from the cork. No effort succeeded in making the loop pass down by the side of the cork. The conditions in the patient were still more unfavorable, for the loop must first have passed under the collar of swollen mucous membrane before it could be made to pass along the side of the cork. With the loop beyond the cork nothing would have been so satisfactory in its extraction. Adhesive materials of all sorts to be applied to a moist surface seemed entirely useless and were not tried. The only variety of instrument that gave me success was a Tiemann's œsophageal forceps. With this I was able, by pushing the partly concealed blades forward, to so dilate the rubber tube as to enable me to grasp the cork, and the grasp was so firm that the cork could be dragged through the foot of tightly fitting rubber tubing with certainty. Having succeeded with this outside of the body, it seemed reasonable to me to place dependence upon it for the removing of the cork from the patient's bronchus, granting the body could be recognized. This uncertainty would hold against any kind of instrument. The effort was therefore made with the above-mentioned forceps, but, after as prolonged a search as it seemed wise to make, I failed to extract the cork, although twice I felt moderately certain that the instrument touched it. This, after all, is a conjecture. Two or three other instruments of the same kind were introduced, but with no better success, and, the patient having been under the anæsthetic now for about forty minutes, further attempts toward extraction were not deemed wise. As respiration was still much impeded by the sinking in of the soft parts with each inspiration, a tracheal tube was introduced and the edges of the upper and lower angles of the wound were stitched together. Through a second tube—the first one being found too short—the patient breathed easily. He was put to bed, passed a rather restless night, but took nourishment once, and on the following morning his temperature was 102°, pulse 110, respiration 35. The additional record of morning and evening temperature, pulse, and respiration is inserted here for convenience:

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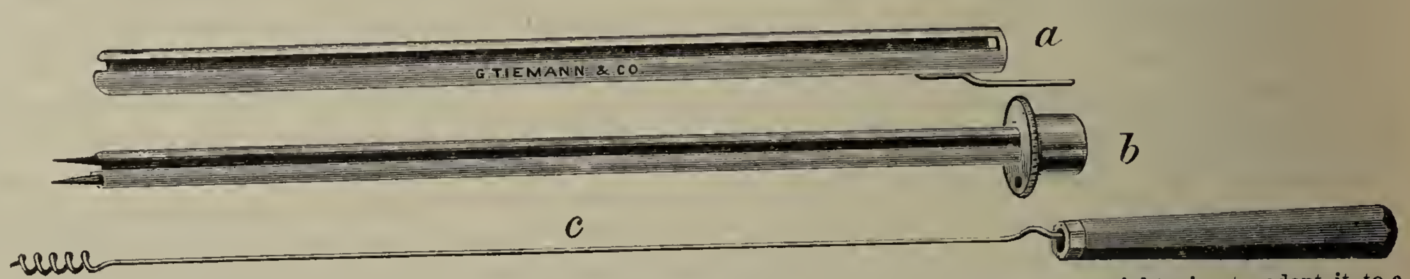
* Read before the New York Surgical Society, May 27, 1891.



a, outer tube; *b*, inner tube; *c*, screw. The original screw was on the end of a spiral instead of a straight wire, to adapt it to a curved tube.

Date.	Temperature.	Pulse.	Respiration.	Remarks.
April 24th........	102°	100	45	
" 25th........	100·4	98	18	
" "	102	105	32	
" 26th........	101	100	24	
" "	100·4	96	18	
" 27th........	101	100	24	
" "	103	100	33	
" 28th........	101	120	40	
" "	101·2	100	18	
" 29th........	99	100	18	Day of second operation.
" "	102	130	28	
" 30th........	101·8	140	25	
" "	101·8	136	30	
May 1st........	100·6	120	36	
" "	100·4	175	36	
" 2d........	103	145	38	
" "	104·2	160	38	
" 3d........	103	160	48	
" "	104	142	54	Death about 9 P. M.

From the morning of the 24th until the 29th, when the second operation was considered wise and the patient's symptoms seemed to warrant its performance, his condition may be described by the following statement: The respiration was nearly always labored, sometimes more and sometimes less so, but never by any means easy; nourishment taken well; bowels and kidneys acting well; sleep broken most of the time; some wandering, dependent partly on the morphine which was necessary to control his nervous symptoms. On the 25th, 26th, and 27th there were several hæmorrhages from the wound, the blood coming from the edges of the wound and not, at first, through the tube; afterward enough blood leaked inward beside the tube to be expectorated through it. Styptic cotton, etc., were used, with only partial success, to control the hæmorrhage, and finally the tube was taken out, and, after application of Monsel's solution, no further bleeding took place. The tube was not replaced, as the patient now breathed easily without it. The appearance of the wound was healthy; there was a moderate odor in the breath, but this disappeared and, as the clot came away, did not return. The surface beneath was healthy. All efforts made to examine the chest during this period were very distressing to the patient on account of the increased labor in respiration. The only changes noticed were dullness over the left chest in front and behind, and some coarse mucous râles in upper left lobe; right lung normal.

After failing to extract the cork at the first operation, and feeling that the patient's condition was such that it would eventuate in death unless something further could be done for his relief, it occurred to me that I might, by the use of a corkscrew made for the purpose, remove the cork before and possibly without being obliged to resort to any more radical measures involving the opening of the chest. The outcome of efforts in the direction of the use of a corkscrew are embodied briefly in a description of the instrument presented here. It consists of a hollow, straight metallic tube, with a caliber of about 30, French, twelve inches in length, like a cystoscope tube, split from end to end for purposes of respiration, the gap being an eighth of an inch in width; secondly, an inner tube of same shape and length, with two small spikes on the sides of distal end concealed by retraction into outer tube; thirdly, a small corkscrew on one end of a flexible spiral wire, and a hollow handle attached to the other end of spiral. A small steel bar on the upper end of the outer tube fitted into a hole in a collar on the upper end of the inner tube, so that rotation of either tube separately would be impossible when they were locked. Much credit is due to Mr. J. A. Pfarre, of Tiemann & Co., for his prompt and intelligent co-operation in the construction of this instrument, which worked to my entire satisfaction outside of the body, and seemed to me to offer the best and, indeed, the only remaining chance of extracting the cork through the tracheal opening.

On the 27th a consultation of the attending staff was held, at which were present Dr. Bates, Dr. Speir, Dr. Hutchins, Dr. Ormiston, and myself. The proposition to make use of the instrument above described was favored, and the matter of opening the chest wall in case of failure with the corkscrew was discussed, the subject having previously been presented to the patient and his consent secured, on condition that the simpler method failed. The only symptom noticed at the consultation not already recorded was an aortic stenosis, and the fact that a very little air seemed to enter the lower left lobe for the first time since I had seen him.

In the event of failure with the screw, it was agreed to open the chest in front and remove the cork through an incision into the bronchial tube, if necessary. The operation of opening through the anterior mediastinum was promptly negatived, largely on account of the indirect access it gave to the cork, and also on account of the difficulty and delay in its performance. The anterior operation had several advantages. By cutting the second and third ribs at their junction with the cartilages, the internal mammary artery would be avoided and hæmorrhage would be trifling. The ribs could be fractured three or four inches behind this section and folded back after the soft parts had been separated from them, and left attached, to be replaced and wired at the cut ends, and the patient's respiration would not be affected. The objections were: the possibility of pleuritic adhesion, the necessary opening of the pleural cavity, and the danger of opening the pulmonary vein in exposing the bronchus. The posterior or Nesïloff operation, proposed for removal of foreign bodies, cancer, etc., in the œsophagus, would be simpler—the pleura not being opened, the aorta and vagus easily recognized and pushed aside, the bronchus readily exposed and opened at the desired spot, and the drainage perfect after the operation; on the other hand, the danger of hæmorrhage was greater, and the patient would necessarily be obliged to lie either on the abdomen or so near to it as to make it impossible for him to breathe. This was the objection that prevented the preference of this operation over the anterior one in my patient's case. The distance of the bronchus, which normally is nearer the posterior aspect of the body than the anterior, would really be about the same in either operation, for in front the bronchus, by moderate traction on the lung, could be brought somewhat upward, while in Nesiloff's operation it would fall away a little from the opening in the mediastinum. A valuable suggestion was made to me by my friend Dr. J. M. Van Cott, in connection with the anterior operation—namely, that, after the chest had been opened, the cork could still be extracted through the trachea by fixing the root of the lung with the thumb and finger and using the corkscrew as first proposed. This would also avoid the danger of hæmorrhage from the pulmonary vein and the soiling of the pleural cavity with fluid from the cut bronchus. The opportunity of doing both the above-mentioned operations on the cadaver confirmed me in the choice of the anterior operation.

On April 29th, therefore, the patient's condition being favorable—the temperature 99°, pulse 100, respiration 18—he was placed under the influence of ether with the head dropping backward over the edge of the table, and, the outer tube of the instrument being introduced, it entered the left bronchus easily by tilting the outer end well to the right. After a momentary respiratory spasm breathing went on quietly through the split tube. A Bozeman's flexible renal probe was passed along the tube and a resisting substance touched that felt like the cork. The feeling that the cork had been struck was shared by Dr. Speir and Dr. Bates, the associate surgeons, who were present at the time. The inner tube was next passed gently into the outer one, and when it was fully inserted the probe was again passed with the same result as just mentioned. The inner tube was now pushed forcibly forward in order to fix the cork on the spikes. I did not hesitate to use as much force as had been found necessary outside of the body to impale the cork, as it could not be pushed into the smaller divisions of the bronchus. I satisfied myself that the substance I had fixed was cork and not the wall of the bronchus by rotating the whole instrument on its long axis and finding no disposition to spring back as the hand was removed, as the elasticity of the tissue would have caused it to do if the spikes were lodged in the wall of the bronchus. The screw was then introduced and twisted into the supposed cork. Letting up slowly on the handle, it began to revolve in the reverse direction, showing that the screw end was fixed. Traction on the whole instrument gave a sense of resistance. As the traction was increased there was a sudden release of the resistance, the corkscrew came out of the tube, the patient coughed up a moderate amount of bloody mucus and breathed with markedly increased difficulty, and was somewhat cyanosed, and this cyanosis continued more or less during the remainder of the operation. Toward the end of the spasmodic cough a small piece of what looked like cork was expectorated, struck my arm, and bounded off, but could not be found afterward. At first it seemed as if the cork might have been dislodged and fallen into the right bronchus, and was causing the additional difficulty in respiration; but, as no change took place in the action of the left chest, I was led to attribute the impeded respiration to mucus dislodged by traction and entering the right bronchus. Further search for ten or fifteen minutes was made for the cork, but without success. I then proceeded with the operation agreed upon. I made a flap three inches long and three inches wide with its detached edge along the left clavicle dissected it up freely and pushed back the underlying muscles, and had just touched the saw to the rib to make the section, when the appearance of the patient's face, the moderate cyanosis, and feeble and intermittent pulse, led me to question the safety of continuing the operation, which would necessarily have been prolonged, and it was agreed that the patient ought not to be subjected to the risk involved. The parts were therefore carefully washed with hot water, a continuous suture was introduced, iodoform gauze and absorbent cotton were applied and retained by a bandage, and the patient was removed from the table to his bed. He became moderately delirious after regaining consciousness within an hour, and continued so until his death on May 3d in the evening. The cyanosis lessened without further evidence of trouble in the right lung or relief to the left lung. The most noticeable change during these last few days of life was in the frequency of the pulse, but the regularity and fullness were not affected. The pulse record, with one exception, showed the rapidity to be between 130 and 175. His stomach continued to act well, as did the bowels and kidneys, the urine containing a trace of albumin, but being otherwise normal. Cough continued, but not very urgent and with little expectoration, and the previous dullness over the left lung gave place to flatness. Medication consisted of the use of alcohol, Magendie's solution of morphine, and oxygen by inhalation. The patient never recovered from the second operation sufficiently to have any further operative measures resorted to, and died, quietly and unconscious, from cardiac weakness, about 9 P. M., May 3d.

The consent of the family having been obtained to examine only the thorax, the autopsy was performed about 11 A. M., May 4th, by Dr. J. M. Van Cott, Jr., assistant pathologist to the hospital. The body had been embalmed by some misunderstanding, but this did not materially interfere with the appearance of the parts examined. The wound in the trachea was healthy-looking, the suture of flap over chest wall had been re-enforced by the embalmer's stitch, although healing of the edges had gone on well except at the lower inner angle, from which before death there had been a slight discharge; otherwise, except for the discoloration produced by the embalming fluid, the parts looked well.

The additional notes are furnished by Dr. Buck, house surgeon: Body well nourished; rigor mortis well marked; no œdema; walls of abdomen and thorax contain fat; anterior mediastinum contains a large amount of pus, is emphysematous; pericardium emphysematous and contains fat; thickened and contains a clear, brown serum.

Heart: mitral valve thickened; columnæ carneæ and chordæ tendineæ shortened and hypertrophied; tricuspid valve normal; aortic cusps thickened and atheromatous; pulmonary valve normal.

Lungs: left, recent adhesion, no fluid; lung retracted. Right, no fluid, no adhesion.

Left, connective tissue at base of lung thickened. In lower bifurcation of left bronchus lies a cork with wide end up and small end down. Cork is half an inch in its widest diameter, seven eighths of an inch long. Lower end of cork is broken off. Bronchial mucosa at this point is generally necrotic, and below the lower end of cork is intensely hyperæmic. Pus oozes from all the smaller bronchi on section; cut surface is rough and hepatized throughout. Right lung: small patches of exudate in bronchus, is large, fully aerated, congested, and œdematous.

The cork was found on examination to contain two small punctures separated by a distance corresponding with the distance between the two points of the spikes on the inner tube of the instrument, and a small piece of cork was lacking on the edge of the upper surface.

The post-mortem findings confirm in nearly all important respects the ante-mortem diagnosis. The cause of failure to extract the cork, it seems to me, is not far to seek. It lay in the obliquity of the traction. There can be no reasonable doubt that the body was impaled on the spikes, and that the screw entered the edge, instead of the center of the cork, and in an oblique direction. If the same thing that occurred outside of the body had taken place in the bronchial tube, I have good reason to think I should have extracted the cork; and if I had had at the time the trachea was opened the instrument used later, I believe the wall of the bronchus would have been so firm that when the end of the tube struck the cork, even obliquely, a little pressure of the tube forward would have brought the long axis of the cork continuous with the long axis of the tube, and the screw would have been introduced as desired, and would not have been drawn out by traction. But the ulcerated condition of the bronchial wall had so softened it that the pressure that brought the cork and tube into line outside of the lung only increased that obliquity in the bronchus. This softening seems to me, in view of the history of most of these cases, to have progressed very rapidly. To provide against this cause of failure in another case that I may never see, I have had several links like those on a vertebrated catheter added to the distal end of both tubes, and this may obviate the difficulty mentioned above; but of this I am by no means sure. It will not make the instrument less useful and may add to its usefulness.

While my patient was under treatment a gentleman called on me and left with me a cork, shown here, like one inhaled in 1853 by a boy fifteen years of age and lodged in the left bronchus. Radical treatment was declined by the parents, and the boy died in about three months from what was called hasty consumption. A case is also mentioned by Gross (*System of Surgery*, vol. ii, p. 319) in which a man, twenty-three years of age, lost his life by the inhalation of a cork during the extraction of a molar tooth, while under the influence of nitrous-oxide gas. The cork had been placed between the jaws and was found after death, which happened within less than two hours after the accident, in the lower extremity of the trachea. There may be other recorded or unrecorded cases like these three. The particular kind of substance that is inhaled, however, is not the point of most interest in cases of foreign bodies in the bronchi.

It is no part of the object of this paper to lay before the society material that is available in text-books and society proceedings, but, in conclusion, to express some thoughts that my patient's case has suggested to me. The few remarks that I have to add to this history already given will be confined to the management of cases of foreign bodies in the bronchi, and it is taken for granted for my present purpose that the diagnosis has been made easy at times, at times difficult, and occasionally well-nigh impossible—the symptoms being in some cases so pronounced as to make a mistake inexcusable, in others so obscure as to make one sure that the foreign body is not in the respiratory tract at all. Indeed, in my own case, careful examination by an acute diagnostician on Sunday led him to express the opinion that the cork had passed down the œsophagus, whereas on the following morning the recognition of the cork and its exact location was perfectly easy. No doubt its changed position made possible the diagnosis on Monday that could not be made on Sunday. All those points, therefore, that are well established regarding symptomatology and diagnosis, important as they are, may be left without special emphasis at this time.

What shall be done for a patient with a foreign body in one of the bronchi? In answering this question we have to take into account the age and condition of the patient and the state of the respiratory organs at the time our advice is asked. The size, shape, weight, etc., of the foreign body will also modify, to some extent, the advice we give. But whatever the offending substance may be, we may start with the assumption that a foreign body in a bronchus is always a menace to life, chiefly by the various inflammatory conditions that are caused by it in the bronchus and lungs—such as ulceration, hæmorrhage, abscess, pneumonia, bronchopneumonia, pulmonary thrombosis, etc. These dangers are greater in proportion to the firmness with which the body is held. There are, besides, all the dangers of laryngeal trouble if the foreign body lies loose in the bronchus or becomes loosened by softening and ulceration, the chief cause for anxiety in this condition being the liability of asphyxia or œdema, or both. The fact that, exceptionally after longer or shorter periods, these bodies lodged in the bronchi are coughed up, is a matter of interest and importance in the tabulation of cases, but in an individual case can not have much influence on the surgeon's mind. The individual patient never can tell, and the surgeon can not tell him, when or whether his will be one of the rare fortunate cases, or one of the more common unfortunate ones. When operative treatment is urged or advised, as distinguished from the let-alone treatment, the surgeon must assume the responsibility that is involved in the dangers of the operation and in the probability of failure to extract the foreign body, even with the trachea open. The danger of the operation is stated by Dr. Weist, in his large and carefully prepared cases, one thousand in number (*Transactions of the American Surgical Association*, vol. i, p. 125), as due largely to pneumonia, this having been the cause of death in 30·13 per cent. of the cases operated upon, while in only 18·7 per cent. of the fatal cases without operation was death due to this cause, a difference of 11·43 per cent. in favor of not operating. But if the cases of death from broncho-pneumonia are added to those from pneumonia, we have in the cases not operated upon 33 deaths; in those operated on, 32. Exhaustion caused death in 4 cases of all varieties of foreign bodies in the air-passages not operated upon, in 15 operated cases; asphyxia, in 84 and 19, respectively; abscess, 10 in the former; consumption, 3 in the latter; hæmorrhage, 8; other causes, 19. Hæmorrhage, with its record of 8 cases and a proportion of cases of exhaustion, may fairly be put down as due to the dangers of the operation. It may be fairly stated, therefore, that the risks of the ordinary operative measures resorted to in these cases are not great. The failure to extract the foreign body is stated in the paper already mentioned as 78·38 per cent., a discouraging percentage for the present methods employed. What experience will teach us in the employment of more radical measures remains to be learned. But there is surely justification in resorting to other methods than those used up to the present time. In the cadaver the two operations previously mentioned are not difficult. The cause of anxiety in the operation through the anterior wall of the chest seems to be the possibility of wounding the pulmonary vein; whether this danger would be increased or diminished by the fullness of the vessel that would obtain in the living subject I can not tell, and how far the pulsations of the artery would complicate the operation can be determined only after experience. Except for these possible objections the removal of a foreign body from the bronchus would not be difficult. The posterior or Nesïloff operation (*Annals of Surgery*, vol. iii, No. 4, p. 308) is still less difficult and much less dangerous. Either of them, it seems to me, in view of our present experience, is justifiable in properly selected cases. Nesïloff's operation consists in opening the thoracic cavity into the posterior mediastinum from behind, by the resection of four ribs, without touching the pleuræ. The posture of the patient is on the abdomen, the arm abducted and raised, or, as I found on the cadaver, simply allowing the arm to drop well over the edge of the table. A vertical incision is made parallel to the vertebral column, and at a hand's breadth to the left, through the whole thickness of the soft parts; two horizontal incisions are carried toward the vertebræ running from the extremities of the vertical incision; a flap is dissected back, and subperiosteal resection of the third, fourth, fifth, and sixth ribs is done separately. It seemed to me that the third rib might be left intact, and that the others could be fractured and folded aside, as in the anterior method, with the idea of replacing them, and with better promise of nutrition of the bone. The pleura is easily pushed forward and the bronchus found.

Another point relates to the common habit of inversion, striking the chest, etc., to dislodge and remove the foreign body from the bronchus. It is practiced as the simplest thing to be done. Is it not, however, erroneous to designate this as simple when its dangers are considered? Of course, if the substance is not dislodged no special harm is done; but if it is loosened from its site and passes into the larynx the danger of asphyxia is as great as when it was first inhaled; whether it gets into the larynx from above or from below makes little difference. A preliminary opening below or into the larynx entirely obviates the danger and secures the benefits of these above-mentioned procedures. If the opening is not made until the asphyxia is already present it may be too late and is of necessity made under the most unfavorable conditions of threatened death with the veins gorged with blood and the patient struggling. Whatever may be true of foreign bodies in the respiratory tract as a whole, experience in the management of cases of foreign bodies in the bronchi would seem to support the surgeon in stating the following conclusions:

That a foreign body in a bronchus is always a source of danger to the patient.

That its spontaneous expulsion is very exceptional and may be long delayed.

That the danger is from inflammation and its results, and less frequently from asphyxia.

That its earliest possible removal ought to be attempted.

That the dangers of operative interference ought not to prevent the attempt to remove the foreign body.

That to attempt the removal without a preliminary opening into the larynx or trachea is unwise.

That after a reasonable search through the trachea and bronchus, opening the thoracic cavity in front or the mediastinum or pleural cavity posteriorly is justifiable.

That all operative measures for relief ought to be taken at a single operation if possible.

That the character of the foreign body and the patient's condition are important factors in deciding on the time and character of the operative measures to be employed.

SCIATICA.*

By GUSTAVUS ELIOT, A. M., M. D.,

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No disease of the nervous system is more common than neuralgia, and no form of neuralgia is, as a rule, more obstinate and annoying than sciatica. Although our knowledge of the pathology and treatment of nervous diseases has been greatly enlarged during recent years, the pathological relations of neuralgic affections have never been exactly determined. In individual cases it is often difficult to decide just how much influence malarial poison has had in producing the disease, although it is generally regarded as the most common cause of neuralgia. How it acts in causing the disease is always a matter of conjecture, rather than of positive knowledge. How frequently and in what way rheumatism and gout, so frequently alleged to be common causes of the affection, really do produce it, are subjects in regard to which our present knowledge is vague and unsatisfactory.

The view, advocated by Anstie, that a disturbance of nutrition of the nerve-cells connected with the posterior roots of the spinal nerves is the essential lesion in neuralgia has not been generally accepted. Nor is it yet possible to demonstrate that inflammation of the nerves themselves, or any discernible alteration in their structure, is present in the majority of cases to which the term neuralgia has been applied.

Recent observations, however, indicate that a not inconsiderable proportion of those cases which it has been customary to class as neuralgia are in reality examples of neuritis. There are good grounds for the belief that not only is the proportion of such cases much greater than is generally realized, but also that it is greater in affections of the sciatic nerve which are classed, in a general way, as neuralgic than in similar affections of other nerves. A recent writer (Dr. Mettler, of Philadelphia, in the *Medical News* of January 10, 1891) asserts that "all appearances warrant the advanced conclusion that sciatica is usually a neuritis of the sciatic nerve."

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* Read before the Connecticut Medical Society, at Hartford, May 28, 1891.

If, then, we assume, as it seems fair to do while the present pathological uncertainty persists, that sciatica is sometimes an inflammation of the nerve—a neuritis—and at other times a purely functional disorder, without demonstrable anatomical change either in the nerve or in the spinal cord, the necessity at once arises of considering the diagnosis of the affection from two distinct points of view: In the first place, it is necessary to distinguish between affections of the sciatic nerve and diseases of other structures in the neighborhood. And, in the second place, when it has been decided that the trouble is located in the sciatic nerve, it is necessary to determine whether the disease is neuritis or neuralgia, an inflammation or a functional disturbance.

If the pain is limited to and follows the course of the great sciatic nerve, or either of its two terminal divisions, between the tuberosity of the ischium and the great trochanter of the femur; to the inner side of the tendon of the biceps femoris muscle in the popliteal space; behind the internal malleolus, and along the inner side of the foot; and if, in addition, well-marked points of tenderness are discovered in the three first-mentioned situations, there can be little doubt that the sciatic nerve is the seat of the trouble. But if considerable portions of the nerve and its branches are free from pain, if it is impossible to discover tender points at several or at all of the usual situations, and if the pain is considerably diffused, doubt may arise as to whether the nerve or some adjacent structure is the part primarily affected.

The diseases with which sciatica is most likely to be confounded are myalgia, articular rheumatism, and arthritis affecting the sacro-iliac articulation, or any one of the joints of the lower extremity.

Myalgia and sciatica may both be accompanied by pain, increased by movement and by tenderness on pressure. Careful examination, if undertaken with a thorough knowledge of the anatomy of the parts, will, however, generally enable the practitioner to determine whether the localities in which there is the greatest pain and tenderness correspond to the attachment of a muscle or to the distribution of a nerve. In myalgia, moreover, contraction of the muscle involved causes a great aggravation of the pain, which is distinctly limited to the muscle and its tendinous sheath and attachments.

If rheumatism is present in a subacute or chronic form, unattended by much swelling of the joint or redness of the integument, the nature of the disease may not be evident at the first glance. But here again careful and thorough examination, with manipulation of the joint and pressure upon it in various directions, will quickly show where the trouble is located.

If the sacro-iliac articulation is affected, separation of the two articular surfaces by pressure outward upon the anterior superior iliac spines, or a forcible pressing together of the surfaces, will cause acute pain.

If there is disease of the hip joint, firm pressure of the head of the femur against the acetabulum, separation of the articular surfaces by extension of the femur, and movements of the femur in different directions, give rise to far more severe pain than when sciatica alone is present.

Having determined that the sciatic nerve is affected, it is necessary in the next place to decide whether the affection is inflammatory or purely functional—in other words, whether it is neuritis or neuralgia. To distinguish these two forms of disease is usually difficult and often impossible, especially at the beginning of the attack.

The pain is generally dull in neuritis, sharper in neuralgia. Pain on movement of the limb is marked in neuritis, but not in neuralgia. Anæsthesia is common in neuritis, rare in neuralgia. Trophic changes in the skin, hair, and nails, and wasting of the muscles are often seen in neuritis, but seldom in neuralgia, except sometimes the muscles grow a little smaller from disuse. Paresis and paralysis of muscles may occur in neuritis, but are never observed in neuralgia. The so-called reaction of degeneration with the galvanic current is often present in neuritis, but never in neuralgia.

The prognosis is exceedingly unsatisfactory. The disease often persists for weeks and even for months in spite of the most ingenious and most persevering treatment. If the disease is a neuritis it may be expected to last longer than if the functional form of trouble is present.

One of the most recent writers on the subject of sciatica (Dr. Pritchard, of New York), in one of the oldest and most respectable medical journals of the country (*The American Journal of the Medical Sciences* for January, 1891), with the enthusiasm so often seen in men during the first half-dozen years of practice, declares that "the modern treatment of sciatica represents a revolution in therapeutics," and, furthermore, that "the pharmacopœia of sciatic neuritis is an entirely new one." And yet I would venture to assert—perhaps, you may say, with the conservatism which young men sometimes display during the second half-dozen years of practice—that the present treatment of sciatica is uncertain, inefficient, and disappointing. The subject is one which well deserves careful study and patient investigation, and it is to be devoutly hoped that not many years will elapse before our knowledge in this direction will be enriched by the suggestion of some therapeutic measures which will increase our power over this distressing malady.

The treatment of sciatica demands the greatest therapeutic acumen—the exercise of the physician's wisest judgment. Many drugs and many plans of treatment have been recommended with immoderate enthusiasm by various practitioners. No drug can fairly be called a specific in this affection, although many possess a moderate degree of utility under favorable circumstances.

In undertaking the treatment of a case of this disease it is necessary in the first place to try to discover and, if possible, to remove the cause which produces it. Anæmia, malarial poison, rheumatism, and gout are ætiological factors which are so frequently associated with neuralgia of all varieties that no careful practitioner will fail to consider the possible relation which each one of them may bear to any particular case which he is called upon to treat. Particular mention should be made of impacted fæces as a condition not infrequently associated with sciatica, and in this connection it is interesting to note that in some parts of the West croton oil is highly esteemed as a remedy for sciatica. This drug is believed by some of those who advocate its use to act not only as a cathartic, but also as a counter-irritant or revulsive.

Having removed any cause which might produce or aggravate the disease, it is necessary in the next place to secure complete rest for the affected part. The patient must be kept in bed, and, if necessary, a splint may be applied to the affected limb.

If the pain is severe it should be relieved. Nothing will accomplish this so quickly as the hypodermic injection of sulphate of morphine. This drug is of inestimable value in securing for the patient temporary relief from his suffering. The good effect of the drug is increased and its unpleasant effects—to some extent—are obviated by the addition of sulphate of atropine. A large enough dose should be administered to relieve the pain entirely. Usually one quarter or one half of a grain of sulphate of morphine, with one one-hundred-and-fiftieth, one one-hundredth, or one seventy-fifth of a grain of sulphate of atropine, will be sufficient, and can be used with safety. These injections should, when necessary, be always given by the physician in person, and should never be intrusted to the nurse, nor to the patient himself. Morphine and atropine should not, however, be relied upon to effect a cure. They often seem to manifest positive curative action, especially in cases of functional disorder. But other remedies should always be administered in connection with them.

Other drugs which have been injected subcutaneously are osmic acid, cocaine, and theine. Osmic acid, the use of which seems to have been suggested on account of its striking effect upon nervous tissue when used as a reagent in the preparation of tissues for microscopical work, is disagreeable to use, causes considerable pain at the seat of injection, is not always very effective in relieving the trouble, and—there is reason to believe—is not always safe.

Cocaine has not borne out the expectations to which the demonstration of its striking effects in producing local anæsthesia early gave rise. Its effects are transient, and the danger of establishing a drug habit is so great as to call for extreme caution in its use.

The results of the investigation of the physiological action of theine seemed to promise that it would prove a valuable addition to our resources in combating neuralgia. I have used it to a moderate extent, administering doses of half a grain dissolved in hot water. Its solubility may be increased by the addition of benzoate of sodium. Injected into the immediate vicinity of the seat of pain, theine produces a positive analgesic effect. But its action is not so striking nor so prompt as that of morphine. The drug will, however, probably prove to be of value in cases in which the pain is not very severe, and also with patients in whom morphine produces such unpleasant results that one is reluctant to administer it.

It is rather curious, in view of the common difficulty of establishing any definite relation between rheumatism and sciatica, that many of the most popular and useful remedies in sciatica are of unquestionable value in rheumatism. In the first rank stands salicylate of sodium. It should be given in fifteen-grain doses repeated every third or fourth hour. Used in connection with the hypodermic injection of morphine and atropine, I have obtained more satisfactory results with it than with any other drug. Its beneficial action may be aided by external anodyne applications. But in many cases even this powerful combination fails to produce prompt and strikingly favorable results.

Salol is, in my opinion, inferior in every particular, except palatability, to salicylate of sodium.

The popular antipyretics and analgesics which have been introduced within the last ten years are now perhaps the most fashionable remedies in the treatment of sciatica. Antipyrine and phenacetine are, I believe, the most efficient of this group of remedies. I have used them both with rather indifferent success. The striking beneficial results which I have observed in neuralgia of other parts of the nervous system I have never been able to duplicate while treating sciatica. It is not difficult, I believe, to find other drugs more useful than these indiscriminately-used and much-advertised new drugs.

Among the older drugs which are entitled to honorable mention in this connection is the iodide of potassium. Probably most practitioners who have treated many cases of sciatica have observed some positive benefit from its use. But, in my opinion, its range of utility is distinctly narrower than that of salicylate of sodium.

Sulphate of quinine, which produces such striking results in some other forms of neuralgia, seems to be comparatively inefficient when prescribed in cases of sciatica.

The use of small doses of sulphate of quinine, combined with arsenic, iron, and strychnine, with the expectation that the combination will have any direct effect upon the trouble in the nerve, is a species of visionary therapeutics which can only excite contempt. I do not, of course, wish to be understood as underestimating the value of arsenic and iron as hæmatinics in anæmia.

Passing now from the consideration of remedies which may be roughly classed as specifics, from their apparent antagonism to the malarial and rheumatic poisons, we come to a group of drugs which are commonly classed as neurotics, because they have a special action on the nervous system. Aconite and gelsemium are the most important of this class.

Several years ago Dr. John T. Metcalfe, of New York, published in the *Boston Medical and Surgical Journal* an account of a prescription which he had used with great success in sciatica. The mixture which he prescribed consisted of equal parts of tincture of aconite root, tincture of belladonna leaves, tincture of colchicum seeds, and tincture of *Cimicifuga racemosa* (black snakeroot). Of this, four drops may be given every fourth hour. On account of the unreliability of the tinctures dispensed in many drug-stores, and because also of their great convenience, tablet triturates, each containing three fourths of a minim of each of the tinctures, came into use. These tablets I have employed rather extensively for a few years. They are of considerable value in the treatment of all forms of neuralgia. Neither in sciatica, however, nor in any other form of neuralgia, have I observed the surprising effects described by Dr. Metcalfe.

I had not used this combination of drugs very long before it occurred to me that it might be advantageous to eliminate from the prescription the drugs of less positive value, to substitute for them a drug of unquestionable utility in the treatment of neuralgia, and finally to employ a more active and possibly a more uniform preparation than the tincture. Carrying these ideas into effect, I have, after long-continued and repeated trials, settled upon the following formula:

℞ Extracti belladonnæ fluidi....... ʒ ss.;
Extracti aconiti fluidi........... ʒ jss.;
Extracti gelsemii fluidi........ad ʒ vj.

M. Sig.: Give six, seven, or eight drops every four hours.

It will readily be seen that eight drops of this mixture contain three fourths of a drop of fluid extract of belladonna, two drops of fluid extract of aconite, and five drops and a third of fluid extract of gelsemium. This dose can generally be given without unpleasant effects to a person of average size, whose heart is in good condition, and who has sufficient strength to be able to be about. It is not generally safe to commence with a larger dose. Even doses of this size must be carefully watched, lest the vision of the patient be temporarily affected, an occurrence which usually gives rise to no little apprehension in the mind of the patient, and not infrequently to distrust of the judgment of his physician. If the patient can not be carefully watched, it is wiser to commence with a dose of six drops, and in this way to avoid the risk of the development of toxic symptoms. Tablet triturates, each containing one minim of this combination, have been made upon my order. They are very convenient, and give one the advantage of being able to use a preparation of uniform strength. Two or three of these tablets may be given every two hours.

The use of external remedies has already been mentioned. Of all which are commonly employed, none is of more unquestionable value than the blister of cantharides. This should be repeated at intervals of forty-eight hours and at different situations along the course of the nerve, and especially where there is much pain or tenderness.

The actual cautery is another agent of great value, and may be used instead of blisters.

Liniments composed of oil of wintergreen diluted with two or three parts of olive oil, or of equal parts of oil of wintergreen, tincture of opium, spirit of ammonia, and olive oil, are of some, but not of very great, utility as adjuvants to internal medication.

The stronger anodynes, such as aconite and belladonna, are not well adapted for external use, on account of the uncertainty of the rate and amount of their absorption.

Concerning the value of electricity there is considerable difference of opinion among physicians. It is, however, generally agreed that the galvanic current is more likely to do good than the faradaic.

In conclusion, permit me to recall a few suggestions which I regard as of special importance:

1. A large proportion of cases of sciatica are neuritis, and not simply neuralgia.

2. Temporary relief of suffering should be secured by hypodermic injections of morphine and atropine, or of theine.

3. Among curative agents salicylate of sodium and iodide of potassium are especially valuable—the former in acute, the latter in chronic cases.

4. Considerable benefit may often be derived from the administration of the more purely neurotic drugs—aconite, belladonna, and gelsemium.

5. Cantharidal blisters are of very great service in promoting the cure of the disease, when used in conjunction with appropriate internal treatment.

27 Wall Street.

SOME ILLUSTRATIVE CASES OF NEURASTHENIA,

AND A STUDY OF THAT CONDITION WITH SPECIAL REFERENCE TO ITS CAUSATION AND PREVENTION.*

By CHARLES E. LOCKWOOD, M. D.

In the study of new diseases or conditions more or less incidental to our rapidly advancing civilization, each one should consider it a duty to relate his experience and record observations from his own point of view, and, as we all look at a subject from a different standpoint, it would thus be illumined on all sides and we would not be so liable to be led astray by the narrow conceptions of the specialist or the broad considerations of the general practitioner. Attention to the topic now in hand appears to be specially opportune, as our present knowledge of the matter seems to be in a more or less confused and unsystematized condition, followed sometimes by treatment or operations calculated to increase when they do not benefit the original trouble. How often are eye muscles cut, nasal passages bored out, and ovaries removed to alleviate suffering which would disappear under treatment directed to raising the tone of the central nervous system and regulating the functions of the stomach, liver, bowels, kidneys, and skin, combined with measures looking toward a more complete oxidation! Further, it is a question as to whether peripheral irritations long continued, especially in those with inherited weak central nerve organs, do not produce organic changes in the spinal cord. Do we appreciate sufficiently how frequently children and persons with inherited low vitality and instability of the nervous system are unwisely placed in positions and under conditions where they break down and become invalids, who under more favorable circumstances might have retained a fair degree of health? Will not a more accurate pathological knowledge show that many so-called cases of neurasthenia are due to multiple neuritis of a mild grade? These and similar questions can only be answered by a careful study of our cases and the advancement of pathological science. All we can at present do is to group certain classes of symptoms which clinically seem to have certain relations to diathetic conditions and which we can in the present state of our knowledge refer only to lack of nervous force and vitality. "Neurasthenia has been defined as a nervous weakness or exhaustion often accompanied by perverted nerve function." It may be primary, due to malnutrition, or peripheral irritation. The classification I have adopted is a modification of one suggested by Dr. L. C. Gray, and brings all cases under three heads: 1, simple; 2, such as are due to suboxidation; 3, reflex. The following cases are illustrative of these three forms. In all the cases some hereditary neurotic or gouty taint with primary nervous weakness can be traced, and the exciting causes—such as mental strain, exhausting diseases, suboxidation, peripheral irritations, with change in the mode of life—find here a congenial soil for the development of a train of nervous symptoms which are not produced in constitutions whose nerve-centers possess a higher tone:

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* Read before the Society of the Alumni of Bellevue Hospital, January 7, 1891.

Mrs. K., white, aged thirty-three years, weight 164⅜ pounds, married, consulted me October 5, 1890.

Family History.—Father dead; does not know cause of death or age at time of death. Mother died at the age of thirty-six, probably from phthisis; mother was subject to attacks of spasmodic pain in stomach. One sister living and well. One brother, who had St. Vitus's dance when young and is now addicted to excessive use of alcoholic stimulants.

Personal History.—Had diphtheria three times when a child. At sixteen years of age had typhoid fever, also malarial fever nine years ago; has been married fifteen years; two children living, one of a very nervous temperament; the other was subject to convulsions while teething; faints frequently. Shortly after her marriage and after the birth of her first child she began to have attacks of spasmodic pains in the stomach, which have recurred at intervals of three or four weeks until about three months ago, since which time they have not been so frequent, but she says she suffered nearly the whole summer from continuous headache. On October 5, 1890, when I first saw the patient, she was suffering from severe neuralgic pains in the left side of the head, for which I administered a hypodermic injection of half a grain of morphine, with the result that the pain left the head and she began to have severe pain in the left side, which also passed away soon after. The pain recurred in the head on October 6th, 7th, and 8th, and I was obliged to administer morphine again. The neuralgia finally yielded after the administration of thirty grains of quinine within three hours on October 8th. On October 25th and 27th, after a visit to the country, she suffered from severe attacks of neuralgia in the bowels, for which morphine was given, half a grain on each occasion. She complains of becoming tired on the least exertion, and says she thinks that the stomach attacks are often brought on by her eating when much fatigued. She has a hacking cough; says she has lately felt like falling when in the horse cars; has an oppressed feeling in the chest; very restless, and complains of a fluttering sensation about the heart when the least excited. Urine examined November 7th: Reaction acid, specific gravity 1·024; no albumin, no sugar; oxalate-of-lime crystals found on microscopical examination. Dr. Mittendorf made a careful examination, and reported that her eyes were in excellent condition, excepting a very congested state of the retinæ and optic nerves. I recommended a modified form of rest treatment with abundance of nutrition, massage, and general faradization, one sixth of a grain of Herring's extract of cannabis indica before meals for a week, increasing dose by one sixth of a grain the second week, and one fiftieth of a grain of arsenious acid after meals. She has since had one attack of neuralgia in side, and on November 18th an attack of spasmodic pain in the stomach, which yielded to a hypodermic of five eighths of a grain of morphine with one one-hundred-and-fiftieth of a grain of atropine. The gastric pain is preceded by a premonitory symptom, which she describes as a cold sensation at the pit of the stomach for an instant, followed by a pain, as though a knife were passed through the pit of her stomach to the back; during the paroxysm her respiration is very much embarrassed. My diagnosis was primary nervous weakness hereditary in character, with gastric neurasthenia; treatment to be based on the lines of rest, nutrition, tonics, and sedatives.

I am unable to form any idea of the pathology of these attacks, unless it may be some irritation of the vaso-motor system, producing capillary contraction in the solar plexus. I shall try the effects of nitrite of amyl in another attack.

On November 23, 1890, the patient had an attack of pain in the stomach at 2 P. M., which yielded to inhalation of three drops of nitrite of amyl. Subsequent attacks were controlled by hypodermics of one fiftieth of a grain of hyoscyamine sulphate without further use of morphine.

Note, July 14, 1891.—The patient improved under this treatment, and has been perfectly well since February.

SIMPLE NEURASTHENIA.

D. H., male, white, aged fifty-eight years; present weight, one hundred and twenty-eight pounds and three quarters; former weight, one hundred and forty pounds; occupation, sedentary; temperament, nervous.

Family History.—Father died of consumption at sixty-three years of age; mother died of catarrh of stomach at forty-five years of age. Had three brothers; one died young; eldest quite well; remaining brother was quite ill when young, his doctor having said that one lung was gone; he, however, recovered, went to Australia, and has since been well.

Personal History.—Was attacked by asthma when twenty-one years of age; he still has it when in certain places, and is free from it in others. In 1866 he had chronic malarial poisoning, which lasted, off and on, for ten years, and during this period took considerable quinine. In 1880 and 1881 he was much worried about family matters and had nervous attacks accompanied by loss of consciousness, requiring more than the usual effort to revive him; he says they were not epileptic. He had been accustomed to much outdoor exercise during his life until four years ago, when he began to lead a sedentary life, taking very little exercise, spending about twelve hours indoors engaged in intellectual pursuits and allowing eight hours for sleep. During past four years he has suffered more or less from following symptoms: Intermittent action of the heart; noises in the ears; throbbing and heaviness in the head; pains in different parts of the body; serous diarrhœa; great sense of fatigue after least exertion; unable to walk much owing to intermission of the heart, and is very sensitive to cold. He mentions a peculiar symptom—that one of his legs, the left, is more sensitive to cold or warm water than the right. At times the irregular action of the heart gives him a sensation of faintness.

Examination of the urine shows acid reaction, no albumin, no sugar; specific gravity, 1·018; under the microscope, crystals of oxalate of lime were found.

On November 16, 1890, patient's eyes were examined by Dr. Mittendorf, who found peripheral opacities of the lenses in both eyes, which, he said, might eventually develop into cataracts.

Urine examined again: Acid; specific gravity, 1·020; no sugar; no albumin; amount in twenty-four hours, thirty-eight ounces; urea in twenty-four hours, four hundred and fifty-seven grains; no oxalate of lime found.

Diagnosis.—Neurasthenia.

Predisposing Causes.—Primary nervous weakness and change of mode of life from active to sedentary habits; age.

Exciting Cause.—Overwork.

Treatment.—Rest, nutrition, and exercise in the open air short of fatigue.

Note, July 14, 1891.—This patient spent the past winter and spring on the island of Jamaica, and has returned much improved.

SIMPLE NEURASTHENIA.

M. P., female, aged thirty-three years; weight, one hundred pounds; temperament, nervous; married.

Family History.—Father died of locomotor ataxia. Mother living, aged fifty-three; well, excepting a tendency to liver derangement. Three sisters and three brothers living and well.

Personal History.—In 1870 had chills and fever, and since then has been troubled with symptoms at various times which she thought due to chronic malarial poisoning. In December, 1885, she went to the country and while there contracted a cold which was followed by pleurisy and subsequently by intercostal neuralgia at times. During the winter of 1885 and 1886 she suffered from nausea, sometimes in the morning and sometimes during the day. In April, 1886, she began to feel pain and bearing down in the lower part of the abdomen accompanied with nausea. Was examined by a physician, who told her she had falling of the womb, and advised her to lie in bed for a month. While in this position she did not feel pain or nausea, but both returned as soon as she stood on her feet. In June, 1886, she consulted Dr. Isaac E. Taylor, who, after a careful examination, said she had no womb trouble. The pain and nausea continued until November, 1886, when she consulted me. At this time she suffered pain and nausea after eating, which sometimes was induced by *looking* at the food set before her. She had no appetite; her bowels were usually constipated, and she suffered from severe mental depression, some pain in the small of the back, with a peculiar weak feeling inside of the thighs running down to the knees.

Diagnosis.—Simple neurasthenia.

Treatment.—Forced feeding; moderate exercise in the open air short of fatigue; recommended that she lie down for an hour or two daily, and, to relieve the pain and nausea, powders of bismuth subnitrat., soda bicarb., and pepsin, of each six grains, and one twentieth of a grain of sulphate of morphine after meals and at bedtime. For the constipation, one teaspoonful of maltine with cascara every night at bedtime.

October 20, 1886.—Patient has been relieved, but is now suffering again from pain in bowels and nausea. The least jar, she says, brings on nausea. I then ordered her to take ten grains of bromide of ammonium with ten drops of tinct. cannabis indica every four hours for ten days to quiet the extreme nervous irritability.

November 20th.—Pain and soreness in bowels and nausea relieved; complains of pain in right shoulder and breast, for which advised local application of belladonna plaster. General treatment continued, with addition of cod-liver oil and phosphorus.

April 12, 1890.—Still weak, but in other respects better; weight, one hundred and two pounds and a quarter; has been more or less under treatment since 1886.

In this case malarial fever and pleurisy, with a primarily weak nervous system, produced neurasthenia with a hyperæsthetic condition of the nerves of the chest and abdomen, the exciting cause being malnutrition and anæmia.

REFLEX NEURASTHENIA.

Miss T., aged twenty-nine years; occupation sedentary; weight, one hundred and seven pounds and seven eighths. Temperament nervous; pulse, 7 P. M., 96, sitting, 102 standing.

Family History.—Father living, fifty-six years of age; has had bronchial trouble. Mother living, aged fifty-two years; has had anæmia and lung trouble, for which she took cod-liver oil. Two brothers living and well.

Personal History.—Had malaria in 1880, 1883, and 1887; miscarriage two years ago; now complains of a hacking cough, which occurs in long and severe paroxysms; the least exertion causes fatigue, and she complains of a sensation as though her heart was rubbing or scraping, followed by a rapidity of action and then an apparent cessation of pulsation and a smothered feeling, as though she was unable to take a long breath; she has paroxysmal pains under both shoulder blades, more frequently when cooling off after being warm; has frequent desire to micturate; darting pains through the womb and right groin, and a stationary pain continuous from left hip to pubis; has more pain when constipated; headache almost continuously; has blur over eyes at times, followed by severe headache. Examination showed the womb to be drawn backward and over to the right and bound down by adhesions. Treatment was begun January 7, 1890, and continued to August 1, 1890—locally, by boroglyceride tampons in vagina and vagino-abdominal galvanism; generally, with increased nutriment in shape of milk, cod-liver oil, arsenic, strychnine, and iron, with result that adhesions around womb were absorbed and patient so much improved that she was able to marry in August, 1890. She is now (July, 1891) pregnant and doing well.

GASTRIC NEURASTHENIA.

April 23, 1890.—I. M. A., aged forty-four years, male, white; occupation, gentleman of leisure; temperament nervous; weight, one hundred and fifty-seven pounds; pulse, 96 at 2.30 P. M. on day of examination; respiration, 18; temperature, 99·6°. Urine examined; nothing abnormal found.

Family History.—No consumption or cancer in the family. Father, of nervous temperament and a sufferer from gout, died at sixty-five years of age from erysipelas. Mother died at seventy-two years of heart disease. Two brothers; one died at thirty-seven years of age of heart trouble; the other, still living at forty-eight years of age, addicted to morphine.

Personal History.—Never had syphilis; had inflammatory rheumatism. In 1865 had chills and fever, and yellow fever in 1867. About ten or twelve years ago (having before that period drank freely of champagne daily for ten years) he began to have attacks of nausea and vomiting, following usually in twenty-four hours after the use of alcoholic stimulants, the only relief for which consisted in the administering of morphine hypodermically in doses of about half a grain, and repeated according to the exigencies of the case. This treatment was always efficient in controlling the attacks, and the nausea and vomiting ceased in about twenty-four to thirty hours, and the patient was as well as before. He says the attacks are not so severe as formerly, but they have continued now for the past ten years. In this case the cause probably lies in some alteration of the capillary circulation in the central ganglion presiding over the stomach through the vaso-motor system.

NEURASTHENIA DUE TO SUBOXIDATION.

L. G., male, white, aged forty-five years; weight, one hundred and eighty pounds; occupation sedentary; temperament nervous.

Family History.—Great-grandfather on mother's side had asthma; grandmother had asthma; mother died of cancer at sixty-three years of age. Father died at the age of eighty years; cause of death unknown. Has one sister who is troubled with gout, and one brother of a very nervous temperament.

Personal History.—Says he is of a sensitive mercurial temperament and is easily elated or depressed; liable to very rapid action of the heart on sudden excitement. Had remittent fever when young; intermittent fever in 1867, with chronic malarial poisoning for about ten years following, when he took great quantities of quinine. Has used alcoholic stimulants and tobacco in the shape of cigars in moderation for twenty-five years. In the year 1887 (having for fifteen years previously led a very active life, attended with much exercise in the open air) circumstances led him to change his occupation for one of a very sedentary character, attended with very little exercise out of doors. In the spring of 1888 he had an attack of rheumatism in both tendo Achilles, necessitating his confinement in bed for one week. On getting up, he began to suffer from great mental depression, an inordinate sense of weakness on slight exertion, a stuffed feeling and roaring and fluttering sensation in the ears, occipital neuralgia, and night-sweats. He consulted several physicians; one told him he had malaria, and advised him to take large doses of quinine, tincture of iron, and arsenic, under which treatment he seemed to grow worse; another said it might be malaria, and advised Warburg's tincture and arsenic; while another expressed the opinion that he ate too much meat and drank too little water. Finally, he tried a change of air, going to Atlantic City; all to no purpose; the annoying symptoms still continued. He then consulted a specialist, who, finding one nasal passage somewhat occluded by a deflected septum, promptly bored it out, roaring in the ears still continuing at times, with sense of fullness. His troubles having been re-enforced during the following year by a painful chronic swelling of the joint of the first and middle phalanx of the right index finger and an attack of subacute rheumatism of the right knee, lasting about two months, and having also had an attack of asthma while in the mountains during the summer, he came under my care in the fall of 1889. I made a careful examination of his urine, and repeatedly found crystals of oxalate of calcium even when he was using no wine or stimulants and eating no article of food liable to produce oxaluria. The reaction of the urine was acid. Quantity in twenty-four hours, forty-eight ounces; no sugar; no albumin; specific gravity in six different days in November, 1·028, 1·024, 1·024, 1·026, 1·026, 1·026.

After hearing his symptoms, I was convinced that he was suffering from nervous symptoms due to primary weakness of the nerve-centers, hereditary gouty taint, and suboxidation brought about by the sudden change from a very active outdoor life to a sedentary one. I recommended that he so regulate his diet as to eliminate sugar and starches, use no alcoholic stimulants, take exercise in moderation in the open air, cold sponge-bath on rising and skin friction with horse-hair strap, and drink freely some pure water between meals—say, a quart daily. The result of the treatment was complete relief from the annoying symptoms mentioned.

The causes may be divided into predisposing and exciting. Under the first may be included constitutional peculiarities transmitted by inheritance—viz.: disparity of age of parents, excessive use of alcoholic stimulants by parents, marriage of blood relations, parents suffering from any of the family of neuroses, gout, phthisis, exhausting diseases, malarial poisoning; the age in which we live, with extinction of leisure incidental to it; the enforcement of excessive mental tasks on children, involving too much exercise of the reasoning powers; too exclusive development of the mind without attention to the physical; and here the investigations of Professor Axel Key, of Stockholm, Sweden, are worthy of attention. He says that having been appointed one of a grand School Commission by the Government of Sweden to inquire into the organization of the whole higher school life, they examined nearly fifteen thousand boys from the middle or preparatory schools for the university, and three thousand girls in the private girls' schools, in reference to their health, and measured and weighed them. The results of these researches showed that boys passed through three distinct periods of growth: A moderate increase in their seventh and eighth years, a weaker growth from their ninth to their thirteenth year, and a much more rapid increase in height and weight from their fourteenth to sixteenth years, or during the period of puberty. The growth continues after the last period, but more slowly. The development of girls also presented distinct periods, but the changes occurred a few years earlier than in boys. He also found that the illness curve rose in the first classes, reached its first maximum in the third class, then sank and rose again in the upper classes. He attributes this sickness to the fact that the burden of work which children have to bear under present school regulations is far in excess of what it should be, and that the average time daily demanded by the school for work in class and at home is seven hours in the lowest classes, and eleven or twelve hours in the upper classes. As he truly remarks, "How do children thus situated find time for meals, for rest, for exercise in the open air, for recreation, and, above all, for sleep?" He also found that the degree of illness among those who worked longer than the average was 5·3 per cent. higher than those who worked less in the two higher classes and 8·6 to 7 per cent. higher in the two lowest classes. When we consider these statistics and apply them to the school-children in New York and add thereto insufficient lighting and ventilation, and the fact that in many class rooms in our public schools only sixty or seventy cubic feet of air space are allowed to each person, that the ventilation is entirely by windows, no proper system having been adopted, and the atmosphere is vitiated by odors from unclean clothing, we certainly have here an efficient cause for lowering the general nerve tone.

As to the administration of opiates in childhood, I can not do better than to quote the words of Dr. O. Marshall, in his report on the opium habit in Michigan to the State Board of Health of Michigan in 1878. He says: "To show to what an extent the dosing of infants with opiates is carried, it is claimed that over three quarters of a million of bottles of Mrs. Winslow's soothing syrup are sold annually in the United States; according to an analysis made and reported in the *California Medical Gazette*, each bottle of this syrup contains from half a grain to a grain of morphine. Placing the average at three quarters of a grain to each bottle, the amount of morphine used in this manner would be 562,500 grains, or about 1,171 troy ounces—enough to kill a half million of infants not accustomed to its use." He adds further: "From the predisposition to nervous and neuralgic affections produced by it, probably many cases of the opium habit in the adult have here their first cause."

Lack of will power and mental tone due to repeated self-indulgence against the voice of conviction, involving weakening of cerebral control.

The bringing up of infants by hand without breast milk. Dr. Salisbury says: "Breeders of stock find that a calf which is allowed to suckle its mother is more than three times the size (when a year old) than one of the same age and breed which has been fed on cold dead milk."

Irregular living, in the way of sleeping and eating, and the demands of modern society on women. Syphilis.

Climate. Too much leisure with lack of employment, mental and physical. The lack of profound and earnest convictions as to the meaning of life in this age of doubt and speculation; for we must recognize the fact that deep-seated convictions, fixed purposes, and the exercise of a firm will in carrying them out, strengthen the higher centers and enable them to dominate the lower.

The exciting causes are anæmia, suboxidation, including lithæmia and oxaluria, diseases of the uterus and ovaries in women and prostate gland in men, overwork, worry, prolonged mental strain, excessive venery, over-stimulation of nerve centers by unnatural methods, emotion; and under this head we may quote the remarks of Dr. Robert Barnes before the American Medical Association in 1876: "Emotion may, in fact, be regarded as a form of peripheral irritation; the passions may in some cases be the immediate cause of those blood changes which lead to functional and organic disease."

Irritation in the sensitive mucous tract of the nose.

Errors of refraction in the eye.

The pathology of neurasthenia is in doubt. Is it defective vitality or exhaustion of the nerve centers due to malnutrition, anæmia, or hyperæmia, or tissue change?

Symptoms.—These are such as we should expect in a condition characterized by a weakening of the innervation centers, and may be classed as such as are due to a weakening of the centers of thought and will, special senses, the automatic centers, reflex and inhibitory, and the centers of sensation and motion. Under the first we have incapacity for sustained mental exertion, varieties of fears, mental depression, lack of self-control, irritability, deficient will-power, insomnia, a sense of fullness in head and ears after mental work, impairment of memory.

Special Senses.—Sensitiveness of the eyes to light, asthenopia, tinnitus aurium, peculiar pulsation in the ear, felt especially when the ear lies against a pillow—dull hearing.

The automatic centers, reflex and inhibitory. Palpitation of the heart, accompanied sometimes with a feeling as though patient was going to fall, especially after slight exertion, or on going upstairs, or after retiring to bed. Anorexia, bulimia, nausea. Flatulence with uncomfortable sense of distention after meals. Vaso-motor disturbances, such as hot and cold flashes, perspiration, watery and slimy diarrhœa. The passage of large or small amounts of urine. Roaring in the ears, feeling of fullness in head and ears.

Centers of Motion and Sensation.—Sudden contractions in certain groups of muscles, as though an electric current had been passed through them; excessive muscular fatigue after slight exertion. Great sensitiveness to heat and cold; pricking sensations in the skin at different points, especially after retiring to bed; burning sensations of soles of feet and palms of hands; sensations of numbness in different parts of the body and soreness and pain in the abdomen and abdominal walls. High and low specific gravity of the urine, as pointed out by Dr. C. L. Dana; high in the suboxidation and cerebral neurasthenias, and low in spinal, senile, climacteric, and anæmic neurasthenias—the last in young people.

The cause of oxaluria in neurasthenias is a matter of dispute, some believing it to be caused by a depressed nerve tone, some by suboxidation, except when caused by the ingestion of certain vegetable substances or wines. The weight of authority and clinical experience, as Dr. Seguin says, seems to be in favor of fermentative dyspepsia and suboxidation.

Certain other symptoms formerly grouped under the head of neurasthenia have been shown to be due to monomania and weakening of certain eye muscles.

Diagnosis.—In diagnosticating simple neurasthenia it is necessary to eliminate organic affections, syphilis, and functional diseases from other causes than neurasthenia, and to be familiar with the hereditary antecedents. This requires a wide knowledge, the assistance of specialists, and such skill in the use of instruments as will enable us to arrive at a positive conclusion.

In the neurasthenia of suboxidation a knowledge of the family history, habits of life of the patient, frequent examinations of the urine, and a careful consideration of the symptoms will generally lead us to a correct conclusion.

In reflex neurasthenia local symptoms will frequently indicate the cause of irritation, or the history of some recent operation in some sensitive area, as the nose or the examination of the eye, will reveal the source of annoyance.

The prognosis in these cases varies with the amount of central control of the individual, amount of primary or inherited weakness of the nervous system, environment, age, habits, and the possibility or impossibility of removal of contributing causes.

Treatment is preventive, hygienic, dietetic, medicinal.

Prevention includes such measures as antagonize hereditary tendencies to neurotic disease. The inherited predisposition should be early recognized, and the occupation, mode of life, and methods of education so arranged as not to encourage the development of neuroses.

The effect of the excessive use of alcoholic stimulants in the progeny in producing nervous diseases should be explained to parents. The marriage of blood relations should be discouraged. Exhausting diseases and chronic malarial poisoning should receive prompt attention.

The gouty diathesis should be recognized and receive the proper care as to diet and exercise, looking toward complete oxidation.

Children or families in which there is a hereditary susceptibility to tuberculosis should early be made to exercise in the open air, and due weight given to the importance of nutritious diet, abundance of sleep and short hours of study, and over-fatigue.

The adaptation of the length of time of study indoors and methods and subjects of instruction to the age and condition of health of school pupils.

Popular instruction as to the danger of the frequent administration of opiates and patent preparations containing these agents.

The cultivation and strengthening of will-power, temperance in eating and drinking, with sufficient sleep and exercise in the open air, and, in the case of the female sex, the avoidance of the fatigue incident to the life of fashionable women by substituting therefor mental cultivation and such social gatherings as have that end in view. Study and investigation so as to be able to hold firm convictions as to one's duty and the exercise of will-power in carrying them out.

The rejection of pessimistic views of life and the endeavor to look on the bright spots instead of the dark ones.

The abstention from unnatural methods of nerve stimulus.

Under hygiene may be included rest, baths, fresh air, keeping the cutaneous circulation active daily by frictions with horse-hair straps after sponge bath with lukewarm salt water with or without alcohol, abundance of sleep, moderate exercise in the open air when the strength will allow, short of fatigue, attention to secretion of kidneys and bowels, diversion of the mind by change of scene and travel, provided the pace is not too rapid and attended with too much sight-seeing, long ocean voyages, thermal baths at such places as Gastein in the Austrian Tyrol and others, these baths seeming to have a calming effect on the nerves, promoting cutaneous circulation and stimulating the organic functions and tissue changes. Relieving as much as possible any organ in which neurasthenia is particularly prominent. As regards the form of exercise in cases of neurasthenia, of course in the weaker class of cases passive exercise alone is admissible; in those who are stronger I have sometimes found moderate horse-back riding very beneficial; walking in the open air, however, short of fatigue, is about as good a form of exercise as any. Mental tonics, such as strengthen the higher nerve centers, are useful—study of history, geology, modern languages, and keeping abreast of modern scientific and philosophical thought as tending to dispel superstition and imaginary evils and substitute therefor reason, self-control, and careful personal observation of facts, and the art of drawing correct deductions therefrom. Such prescription, of course, could only be given to such whose intellectual tone would justify such advice.

Dietetic.—In ordering a diet for neurasthenia, the fact that fatty substances enter largely into the composition of the brain, spinal cord, and ganglia, and that the ash of the cerebral substance yields 93·57 per cent. of phosphoric acid and phosphates, should influence us in the choice of articles, so that we may especially emphasize the use of butter, bacon, fat of meats, cream, cod-liver oil, and cold boiled pork, as suggested by Dr. Seguin. Milk and cream can be taken between meals, and for some patients, who are not able to use milk, I have found kumyss, matzoon, and peptonized milk excellent substitutes. In one case I allowed the patient to breakfast at 9 A. M. and to dine at 2 P. M., and in addition ordered half a pint of peptonized milk every two hours, commencing at 8 A. M. and ending at 10 P. M. As regards drink, I have found the use of two to three pints of Hygeia or Poland water during the day or of Hygeia lithia water in lithæmic cases useful. The foods containing phosphorus and its compounds belong to the animal and vegetable kingdoms. It is an essential ingredient of albumin and fibrin. It exists as phosphoric acid in the yolk of eggs, as phosphates of calcium, sodium, magnesium, and iron in milk, as subphosphate of calcium in bones and raw sugar; in beef, as phosphate of potassium; in liver, in a brown oil containing phosphorus; in chicken, as phosphate of calcium; in fish and oysters, which are especially rich in phosphoric matter; in most vegetable substances, in potato as phosphates of ammonium and magnesium; in wheat, especially the outer husk of the grain, rye, barley, oats, rice, asparagus, onions, leeks, garlic, cabbage, and cauliflower.

In simple neurasthenia, therefore, we can furnish these important substances by including in our diet-lists beef soup made from beef and bones with onions, and with or without egg; fish of all kinds, milk, potatoes, onions, asparagus, cabbage, cauliflower, oatmeal, bread made from the whole wheat grain, rice, beef, chicken, liver.

In those cases of neurasthenia in which the urine passed is of high specific gravity and contains crystals of uric acid and oxalate of lime, due probably to suboxidation from deficient exercise and a too limited supply of oxygen, and not to the action of the vaso-motor system of nerves upon the capillary circulation, and thereby hindering oxidation, we must so modify the diet as to eliminate as far as possible the carbohydrates and thus diminish the toxic matter in the circulation due to suboxidation; and by increasing the ingestion of liquid by ordering a quart of Poland or other water to be drank during the day, we can hasten the elimination of effete products.

Medicinal treatment consists in the administration of such remedies as furnish fats or phosphorus; regulate cardiac action; adjust the controlling power of the vaso-motor system of nerves; give tone to the nervous system, quiet nervous irritability, aid digestion and assimilation, promote oxidation and sleep, and overcome constipation; such are pure cod-liver oil, phosphorus in the form of Thompson's solution or in pills of pure phosphorus or phosphide of zinc, arsenic in the shape of Fowler's solution or arsenious acid—commencing with small doses and increasing according to effects and degree of toleration. Digitalis and ergot to regulate cardiac and vaso-motor action; opium and its alkaloids, morphine and codeine; bromide of sodium and ammonium; cannabis indica, tincture and extract, to allay nervous irritability. Caution, however, should be used in the administration of opium and its alkaloids in these cases. Much judgment should be employed in the selection of cases, and the patients should not be allowed to know what they are taking. With these precautions the stimulating and calming effects of small doses of these drugs in suitable cases and for certain fixed periods can not be overestimated. Alcoholic stimulants, disguised, if possible, to relieve melancholy, assist digestion, quicken the circulation, and procure sleep, but to be prescribed with great care and discretion and after a careful consideration of the antecedents and temperament of the patient, and to be discontinued as soon as marked necessity for their use has ceased to exist.

Strychnine as a nerve tonic with arsenic, iron, and alkaloids in gouty cases to promote oxidation and assimilation. Dilute nitro-hydrochloric acid in some bitter infusion in oxaluria. The faradaic or galvanic current to give tone to the vaso-motor system and thus favor a more equable supply of blood to nerve-tissue.

Cascara sagrada, in the form of solid or fluid extract or in combination with extract of malt, I have found efficient in overcoming, if not curing, the obstinate constipation present in these cases at times. Active purgation is not well borne.

For a certain class of cases in whom the smallest expenditure of vital force is attended with disagreeable symptoms we have the treatment suggested by Dr. Weir Mitchell, consisting of absolute rest, forced feeding, massage, electricity, and other measures; for others, whose symptoms are not so urgent, a modified rest cure seems to be sufficient, including seclusion with rest in bed for an hour or two daily with forced feeding, massage, and general faradization. Whatever treatment may be adopted, it is well to warn patients that it will be long and tedious, involving as it does the counteraction of primary nerve weakness, the entire change from former habits of life, and the breaking up of a vicious circle of malnutrition.

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NOTES ON

SPECIMENS OF RIBS WITH EXOSTOSES AND ABSORPTION OF BONE

FROM A DRAINAGE-TUBE IN A CASE OF EMPYEMA.*

BY A. BROTHERS, M. D.

THE specimens which I have the honor of presenting you to-night owe their origin to the epidemic of *la grippe* which visited our city a year ago.

About December 20, 1889, L. H., a boy of sixteen, was suddenly stricken down during the night with a violent chill and pain in the right chest. On the following day, when I first saw him, he was in a state of fearful prostration. His temperature was 105° in the axilla, his respiration was excessively rapid and labored, his pulse was almost imperceptible. The diagnosis of lobar pneumonia with complicating pleurisy was confirmed in a day or two by the presence of cough, rusty expectoration, and characteristic decubitus. For a number of days he was delirious, cyanotic, and in a state of profound collapse, with involuntary discharge of fæces and urine. About the eighth day of the illness, with the aid of heart stimulants pushed to the extreme limit, he was in condition to be placed upright and examined thoroughly. The physical signs indicated the presence of fluid almost completely filling the right chest cavity, and the aspirating needle proved it to be pus. As the pulse was gaining in strength and the fever was running a lower course, it was decided to wait a little longer until the boy was in better condition before resorting to an operation. On January 3, 1890 (the fourteenth day of the illness), it was decided to evacuate the pus. His condition was better, but still too poor to admit of a resection of ribs, so that I was obliged to content myself with an incision in the seventh intercostal space behind the axillary line, done rapidly and under cocaine anæsthesia. A very large quantity of pus escaped, and two large, stiff drainage-tubes were introduced into the pleural cavity. One of the tubes was removed within a week, but the other was kept in place for eight weeks. An acute nephritis with general anasarca existed for six months, and then completely disappeared. The boy rapidly gained in flesh and strength, but a fistulous tract remained. A sojourn in the mountains during the summer failed to cause sufficient expansion of the chest to cure the fistula. On September 30, 1890, he complained of distressing dry cough, with expectoration occasionally of thick mucus and blood. He had gained three pounds in flesh. At this time an examination revealed the following: The right chest is distinctly smaller and caved in. The left lung shows compensating emphysema with vesiculo-tympanitic percussion note and feeble respiratory murmur. The right lung in front is normal in percussion note to a point below the nipple, where dullness begins. Behind there is dullness above and flatness below the lower angle of the scapula. Breathing is broncho-vesicular at the apex and very much diminished throughout the rest of the lung. The probe enters a depth of three inches in an upward and forward direction.

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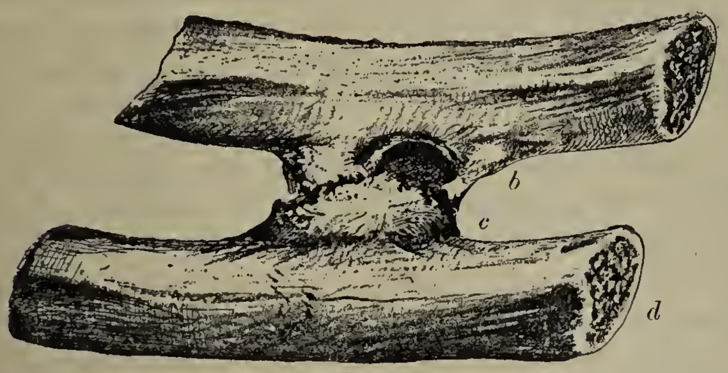
* Read before the Society of the Alumni of Bellevue Hospital, January 7, 1891.

On November 21, 1890, with the sanction of Dr. A. Jacobi and with the assistance of Dr. C. E. Denhard, Dr. L. J. Ladinski, and Dr. S. Brothers, I excised portions of the seventh and eighth ribs. The operation presented nothing unusual or difficult until the process of peeling off the periosteum was begun, when a free flow of venous blood from the region of the new growth of bone caused quite some alarm for a little while. The bridge of new bone was rapidly broken with a bone forceps and a section about two inches long of the upper rib removed, when the bleeding seemed to cease spontaneously. The second section of rib was very easily removed. Recovery was very rapid, and at the present writing the boy is practically well.



Posterior view. *a*, upper rib (7th); *b*, cavity due to absorption; *c*, new growth of bone; *d*, lower rib (8th).

The specimens are two sections of ribs each about two inches in length joined by a central bridge of new bone broken through at the time of the operation. The upper rib shows on its lower border a circular aperture, a quarter of an inch in diameter, due to absorption from the drainage-tube. The lower arch of the circle is completed by the new osseous structure which binds the upper and lower ribs firmly together. This bridge of newly-formed bone is fully half an inch square and extends further backward in a pointed manner than the ribs themselves.

ACUTE PROSTATITIS AND PROSTATIC ABSCESS.*

By WILLIAM R. BALLOU, M. D.,
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In a rather large experience in urethral inflammation—viz., one thousand cases of urethritis in various stages, seen in hospital, dispensary, and private practice in the past five years—I have only observed three cases of prostatitis resulting in an abscess of the gland, though I have seen many of acute inflammation of a milder grade.

Pathology.—Acute prostatitis may and commonly does only involve the mucous lining of the prostatic urethra and the follicles and glands of the organ, though the changes are not very extensive and enlargement is not so marked as it is in the more severe form. In this mild form there is little or no swelling of the gland or the adjacent parts, and the condition usually terminates in resolution in a few days.

In the severer form the termination may be either in resolution or in prostatic abscess. In either case the prostate is enlarged and projects into the rectum or urethra.

A lateral half or the whole of the gland may be inflamed, and if an abscess is developed it may also be unilateral or the whole gland may be the seat of a single abscess. Many distinct foci of suppuration may also be present. Perforation and discharge may be either into the urethra, in the region of the veru montanum, into the rectum, or through the perinæum.

Ætiology.—The most frequent cause is extension of acute inflammation from the anterior urethra, although I have seen it in one patient after a profuse urethral discharge of *seven years'* duration (see Case II).

It may also be due to cold, strong and irritating urethral injections, or traumatism, such as by the awkward or forcible use of sounds and other instruments, especially if the mucous membrane is in a state of inflammation. Venereal excesses have also been given as a cause, but they must act so very infrequently of themselves.

I have observed many examples of the milder form in the subacute stage of specific urethritis.

Symptoms.—*A. The Milder Form.*—In this there is first an increased frequency of urination attended with spasm and sometimes blood. There are pain, throbbing, heat, and fullness in the rectum, and the prostate may be felt somewhat enlarged, projecting into the anterior rectal wall.

The pain may be, and often is, reflected down the thighs and into the scrotum, and movements of the body are painful.

Sometimes complaint is made of difficulty in micturition, due to diminution in the caliber of the prostatic urethra from the congestion.

The temperature usually ranges from 100° to 101° F., and seldom higher except in the event of pus formation.

Resolution usually takes place in a few days.

B. The Severer Form.—In this the primary symptoms are much the same, although rather more exaggerated.

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* Read at the seventh annual meeting of the Fifth District Branch of the New York State Medical Association, held in Brooklyn, May 26, 1891.

The pain is more intense and the swelling more marked, with a consequent difficulty in urination. The pulse and temperature are higher, the latter rising to 104·5° F. in a case of my own, to which I shall refer subsequently in my remarks (Case III).

The swelling, throbbing, and pain in the rectum are more marked, and defecation may be painful or much interfered with. I have seen the fæces compressed to tape-like masses due to this swelling (Case III).

As the formation of pus is developed, all of the symptoms become intensified, movements of the body even are accompanied by agonizing pain, more or less complete retention of urine may be present, and the temperature rises suddenly and is usually accompanied by rigors and sweating.

Rapid emaciation is often marked. These symptoms may suddenly abate by the abscess rupturing into the urethra or rectum, the condition then gradually disappearing, and pus be discharged for some time. (In Case III pus was discharged in considerable quantities for four weeks.)

Prostatic fistula or extravasation of urine from the prostatic urethra is very rare (Moullin, *Treves's System of Surgery*), owing to the fact that the surrounding tissues are very tense from cellular infiltration.

Prognosis.—In the mild form the intrinsic tendency is to rapid recovery.

The severer form terminating in abscess tends to recovery when the proper diagnosis of abscess is made, but in cases where a rectal examination is not made the condition may produce retention of urine. This may require the passage of instruments for its relief, and rupturing into the abscess cavity by force may take place. Septic infection may be set up and death result, as has been known to occur.

Treatment.—In all cases in the beginning absolute rest in bed is to be enforced whenever practicable and all local urethral medication stopped at once. A brisk purge at the beginning is advisable, although such an authority as Reginald Harrison looks upon this with marked disfavor. Laxatives should be given at intervals later on.

Alkalies—such as ten grains of citrate of potassium or five drops of liquor potassæ with tincture of hyoscyamus in drachm doses every three hours—I have found most efficacious in diminishing the pain and frequency in micturition. These should be kept up during the whole course of the disease. Local remedies to the perinæum are often of service, such as leeches, hot fomentations, fly blisters, or cantharidal collodion. Hot hip baths are often of benefit. Morphine internally or suppositories containing opium and belladonna are often required for the intense pain.

If retention of urine occurs, as it sometimes does, a soft catheter should be passed after the urethra has been irrigated with a mild solution of potassium permanganate. After evacuation of the bladder this should also be washed out.

Sometimes a metallic instrument may be required, but it should be used with caution, as the softened prostate may easily be lacerated and false routes formed. Aspiration above the pubes may sometimes be preferable. If abscess forms, a free incision should be made, the position varying in different conditions. I would not take too arbitrary a stand on this point, but vary with its tendency to pointing.

Even if fluctuation is not distinct, a free and deep perineal incision should be made with the patient in the lithotomy posture. The formulating of this procedure was first brought forward by one of our own fellows, Dr. Gouley, several years ago.

After evacuation under antiseptic details the abscess should be washed out with a solution of bichloride of mercury (1 to 3,000) and a large drainage-tube passed deep into its cavity.

Even if fluctuation is not present and abscess is suspected, I should recommend a free perineal or rectal incision to relieve the great tension under the fibrous capsule.

After a few days pus is sure to form in the severer cases, and an incision shortens the duration of the disease and relieves the pain in a marvelous manner.

The passage of a sound into the bladder in the hope of rupturing the abscess into the urethra is sometimes recommended.

I shall conclude by giving briefly the notes of three cases of acute prostatic abscess:

CASE I.—Seen with Dr. H. F. Nordemann. A. B., aged twenty-seven, had suffered for some years from an organic urethral stricture with considerable discharge. A week after the passage of instruments the prostate became large, tender, hot, and fluctuating. On the fourth day it was tapped with a trocar through the rectum and about two drachms of pus were withdrawn. A rapid recovery ensued with discharge of pus by the trocar opening for a week.

CASE II.—A negro, aged thirty-three, was seen at the Polyclinic Dispensary in 1889. There was a deep urethral stricture with a profuse urethral discharge of seven years' standing. The symptoms of acute prostatitis were still present, although a prostatic abscess had opened spontaneously a week before into the rectum and was still discharging pus. The discharge was present a week later, when he passed out of observation.

The principal point of interest was that the prostatitis developed when the urethral discharge had existed for so long a time and in spite of the fact that no instrument had ever been passed into his urethra.

CASE III.—This third and last case is of special interest to me on account of the patient's having been under my care for some time before and after the attack. A. C., aged twenty-four, came under my care in private practice on November 1, 1890, for his second attack of specific urethritis, showing itself ten days after intercourse. He was treated with irrigation of permanganate of potassium (one tenth of a grain to an ounce) every two hours, and in a few days all discharge had ceased.

On November 14th he drank wine late at night, and noticed the next day a slight discharge, with pain on urination and in the scrotum. On November 18th he took to his bed on account of pain, and a rectal examination showed the prostate to be enlarged, hot, and painful. Urination was difficult and painful, but this was relieved after a few doses of citrate of potassium and hyoscyamus. Every movement of the body was attended with intense pain and rectal tenesmus was marked.

On November 22d an obscure fluctuation was felt in the rectal swelling and an operation advised. Any anæsthetic being positively refused by the patient, the rectal incision was deemed the most speedy and least painful.

A Sims rectal speculum was introduced with the patient on the side, and a deep incision made into the center of the swelling with a long, narrow blade. It evacuated about a drachm of pus. The rectum was irrigated with hot water and the patient put to bed. The relief was immediate and very marked; in fact, I have never seen such relief as this simple incision afforded. The pain was markedly decreased, urination became free, and movements of the body were no longer accompanied by agonizing pain. Some pain on moving the bowels remained for a few days.

About a drachm of pus was evacuated daily for four weeks, when the discharge ceased and the patient made a complete recovery. In the latter part of December he left the city for a health trip to the South, and I have seen him during the past month in perfect health and with no sign of prostatic fistula, which we have been taught to believe is so often the sequel to the rectal incision.

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A STUDY IN AEROTHERAPEUTICS.

By SAMUEL S. WALLIAN, A. M., M. D.

Ozone.

Schönbein is generally accredited with the discovery of ozone, but in reality his announcement was foreshadowed by our own Franklin, who in 1749 asserted that the peculiar odor noticeable after severe thunder-storms was produced by electrical decomposition of atmospheric air. Subsequently von Marum demonstrated that the same odor could be produced by passing sparks from an electrical machine through an atmosphere of confined oxygen.

In 1840 Schönbein published his *Observations on the Smell produced by Electrolysis of Water, and by the Current of Ordinary Electricity emitted from Points.*

In this essay he suggested the name *ozone* (from ὄζειν, to emit odor) as fairly descriptive of the new agent, which he was inclined to believe was a hitherto unknown and undescribed element, resembling in some degree chlorine, bromine, and other similar elements. Subsequently he adopted various and rather fanciful theories concerning this little-known gas—viz., that it was not an elementary body, but was one of the constituent elements of nitrogen, which necessarily compelled him to assume that the latter is a compound body and not an element, as had previously been taught.

Later on he became convinced that it was one of the elements of hydrogen, and combined with this gas to form a compound one degree higher in the scale of oxidizing agents than hydrogen dioxide.

These theories were not entirely exploded until 1864, when Marignac and de la Rive proved that ozone could be produced by the action of the galvanic current on pure oxygen.

Andrews followed with indisputable evidence that, whatever its origin, ozone is under all circumstances uniform and identical in composition and chemical properties, and that it is not a compound body, but simply oxygen in a definitely modified or allotropic condition.

Schönbein further contended that there are two distinct and directly antagonistic conditions of active or allotropic oxygen—*ozone* and *antozone*—citing in proof of his position that *ozone* proper has no affinity for or action on water, but that *antozone* readily combines with water to form hydrogen dioxide; also that, on the contrary, *ozone* decomposes potassic iodide, while *antozone* has no effect on it.

Meissner indorsed this theory, while von Babo and others declared, as a result of carefully repeated experiments, that "active oxygen"—*i. e.*, oxygen that has been acted upon by a galvanic current—affords all the tests claimed for ozone and antozone. This is now the generally received opinion of scientists, although it must be confessed that many points in connection with the nature and offices of ozone are not yet clear.

Referring to the theory of antozone, Meissner undertook to connect it with the origin of mists and clouds, proposing a theory so plausible as to command considerable scientific attention, and which is not without supporters at the present day.

According to this authority, the following formulæ and symbols represent the three states or conditions of oxygen:

$(OO) = O_2 =$ Ordinary, atmospheric, or passive oxygen.
$-(OO)O = -O_3 =$ *Ozone*, or *negative* electric oxygen.
$+(OO)O = +O_3 =$ *Antozone*, or positive electric oxygen.

As a modification of the foregoing, Baumann * suggests the following:

$(O)_2 =$ Ordinary or passive oxygen.
$(O)_3 =$ Ozone.
$(O)_1 =$ Active oxygen.

According to this author, $(O)_1$ represents the most intense and powerful condition or factor known as regards oxidizing agents or processes; is, in fact, a source, perhaps the only source, of ozone proper, since it alone possesses the property or power of combining with passive oxygen to form ozone. To prove his theory he asserted that this assumed "active oxygen" was capable of decomposing carbonic monoxide, a result which can not be produced by ozone proper (Remsen).

Soret demonstrated that two volumes of ozone are equal in weight to three of ordinary oxygen, while Tait and others completed the evidence in this direction by showing that a given volume of oxygen when subjected to the action of the electric current diminished in volume to correspond exactly with Soret's determined difference in the specific gravity of the two conditions of the gas.

Under a pressure of one hundred and twenty-five atmospheres and at a temperature somewhat below −100° F., a French experimenter, whose name is not now recalled, professes to have liquefied ozone, in which condition he described it as an intensely blue liquid of considerable specific gravity and decidedly unstable in character. This statement has apparently never been definitely corroborated by others, and may be questioned, since it seems to be generally understood and acknowledged that of all known gaseous bodies pure and undiluted ozone is the most difficult to separate, manipulate, or retain. It not only quickly oxidizes and destroys any form of either organic or metal container, but is itself, by this same process, transformed into passive oxygen. Contact with certain metallic bodies, such as spongy platinum or finely divided gold, effects the same change, often with explosive violence; and this effect is strictly catalytic, the metals themselves being unaffected by the contact.

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* *Ctrlbl. f. Chem.*, 1881, No. 28.

The difficulty of adapting glass apparatus, the only substance in which to manipulate it, so as to command at once the high pressure and low temperature required to produce the effect above described, is readily apparent.

In the light of recent facts it is to be doubted whether any experimenter has ever produced or used, in a single instance, appreciable quantities of undiluted ozone. The product utilized and reported upon as ozone has doubtless been more or less diluted with either ordinary oxygen or atmospheric air. The wide discrepancies in the statements of different observers can hardly be accounted for on any other hypothesis. For example, in a former paper, published some years since, I quoted Professor Binz, of Bonn, to the effect that he had himself inhaled considerable quantities of pure ozone, and had administered the same to several of his students and others, without discomfort and with perfect impunity. It is now evident that he too was mistaken. In other words, his ozone, which may possibly have been actually unmixed *for an instant*, must have undergone rapid but undetected transformation in contact with metallic or organic substances connected with his containing or inhaling appliances. While no clinical tests are at hand to attest the truth of the statement, according to our present light, pure ozone, in contact with living animal tissues, would presumably destroy them by an oxidizing process as swift as that of the actual cautery.

From the time of its first definite description and christening by Schönbein, the chemical and physiological relations of ozone have been the subject of serious but rather desultory study. Its chemical relations, while even yet very imperfectly understood, have shown such remarkable intensity that no scientist can longer question their immense importance as regards the matter of health and disease, the prevalence or absence of epidemic influences, and the whole subject of every-day hygiene.

In nature it is intimately associated with telluric and meteoric phenomena. It is quietly evolved by trees and plants, especially by flowering plants, by the action of sunlight on atmospheric oxygen, by friction of the waves of the sea with the atmosphere and with the shore, by violent wind-storms, by the quiet play of electric forces in the atmosphere, but especially by storms which are accompanied by thunder, lightning, and heavy rainfall. Doré claims that the grand source of ozone, as regards the entire planet, is the action of the equatorial sun on the oxygen of the air, since in the latitude of the equator all the essential conditions for its production—heat, direct sun-rays, excessive humidity, and violent meteorological changes—are present in a marked degree. It prevails in the upper strata of the atmosphere to a much greater extent than in the lower, for two reasons. First, it is formed chiefly *above* the mists and clouds, whose *upper* surfaces are the ones constantly exposed to the sun's direct rays. Second, a constant process of oxidation is in operation near the surface of the earth, which, in fact, would otherwise soon become obnoxious to animal life, and this process being carried on by active oxygen, the latter element thus continually exhausts itself in doing its salutary work. It can always be found in greater or less abundance in the upper atmosphere, as, for instance, at the top of a high tower, when not a trace of it can be detected at its base. So, also, it is found in the adjacent country when not a trace of it can be detected in a populous city. Faraday found plenty of it on the Brighton Downs, but as he approached the town it gradually diminished until in the town itself it was altogether lost. Some authorities assert that it is never found inside of inhabited dwellings, no matter to what extent it may prevail outside. Dr. A. W. Nicholson, as a result of special experimentation, disputes this.

A curious fact in connection with its physical properties is that, while high temperature is one of the essential factors in its production, excessive heat (about 240° C.) causes it to resume its original volume, and changes it into ordinary oxygen. Another peculiarity is that it is hygroscopic in a much higher degree than ordinary oxygen.

According to Mulvany, temperature alone is comparatively negative as regards the production of ozone, whereas humidity has at all times a marked influence. Whenever the temperature curve is high and there is excessive humidity, ozone abounds, while with a similar temperature and low humidity ozone is deficient. Barometric pressure, according to the same authority, does not seem to exert any marked influence on the presence or absence of ozone; but evaporation seems to be essential, and rain acts as a vehicle for precipitating it from the upper atmospheric strata, where it is constantly evolved. The absence of this vehicle in case of flash lightning, or "heat lightning," is made apparent by the lack of appreciable increase in the quantity of ozone-oxygen in the atmosphere during and after these very common displays.

Numerous and contradictory theories have been advanced with regard to the influence of both a paucity and excess of atmospheric ozone as an exciting cause of various diseases and of epidemics. Steiner held that outbreaks of Asiatic cholera occur only when there is a marked absence of ozone. Isbert contended that to a lack of ozone must be added a high temperature and excessive humidity; but Mulvany's observations during the epidemic of 1871 showed that the disease subsided when the temperature reached its maximum, accompanied by atmospheric stagnation and great humidity, reappearing as soon as there was a marked depression in the temperature and a return of moving breezes.

Absence of the usual percentage of ozone has been considered a fruitful cause of phthisis, as well as of pneumonia, bronchitis, diphtheria, influenza, scarlatina, and many other diseases. No doubt this powerful agent exerts more or less influence as an ætiological factor in these as in many other diseases, but thus far theories and conclusions have, as already indicated, been too hastily deduced, or have been based on insufficient or misleading data.

Dr. A. M. McAldowie (*Brit. Med. Journal*, vol. ii, 1881, p. 666), as the result of extended observations, confirms the popular belief in the remedial value of a residence in the vicinity of pine woods in case of pulmonary complaints.

On the theory that the results noted depend upon ozone, which abounds in the atmosphere of pine regions, and that this marked prevalence of ozone is due to slow oxidation of turpentine, terebene, or some principle of the terebinthinate group, he made use of terebene, both internally and by inhalation, in two hundred cases of phthisis and chronic bronchitis, with decidedly favorable results. One of his methods was to expose terebene, or even ordinary oil of turpentine, in flat leaden vessels about the room. A part of the liberated oxygen attacks the vessel, forming oxide of lead; the rest escapes into the atmosphere in the form of ozone.

The most decided influence of this insidious and somewhat mysterious agent, observed by Mulvany, was its effect on the procreative function. He says: "At Trincomalee, in Ceylon, the most positive evidence of this peculiar influence is obtainable. . . . From May to September the southwest monsoon blows over the island, and in passing through the jungle gets robbed of its ozone. From October to April the northeast monsoon blows over the Bay of Bengal and arrives at the village laden with ozone. . . . Here is a suitable field for testing its influence. For this purpose I overhauled the baptismal registers kept by the Roman Catholic priests, because their religion requires a child to be baptized as soon after birth as possible. Then I had access to the public register. . . . From May to September the ozone in the village (according to the meteorological record) was 2·5; from October to April, 8. And the corresponding conceptions were 57 and 100—viz.: Ozone 2·5, conceptions 57; ozone 8, conceptions 100."

The Malagash negroes breathe a scantily ozonized air, and are noted for their want of fecundity, while on the east coast of Central America and on the north side of Cuba and Jamaica, where the atmosphere is nearly always highly ozonized, large families and mutiple births are quite the rule.

That the free use of active oxygen has a marked influence over the procreative function no longer admits of doubt. Patients who have regularly inhaled the artificially prepared gas for some weeks or months, for various ailments, have almost invariably found themselves gradually recovering lost sexual tone to such a decided degree that this result of the gas could neither be rationally doubted nor attributed to other causes. Numerous observers have corroborated each other on this point, and in nearly every instance the results noted have been wholly unanticipated. Cases of pronounced and chronic sterility have under its use recovered, so that one or more conceptions have resulted, and impotence of long standing has given place to a fair degree of virility. Whether these cases were peculiar and explainable on some other hypothesis, or whether this effect is one which may be considered rational from a scientific standpoint, remains to be determined. Certainly the study is both interesting and important.

A physician of my acquaintance, who has made extensive use of active oxygen in his practice, declares that he has but one objection to its use, which is that it invariably arouses the sexual appetites of those patients who persist in its use for any considerable time.

As to practical methods for obtaining ozone, or rather *ozonized oxygen*, since the use of pure ozone is neither feasible nor desirable in therapeutics, it is now well known to scientists that nascent oxygen—that is, oxygen which has been recently prepared from potassium chlorate or other chemicals—contains a distinct trace of ozone. This may be easily proved by any experimenter who will take the trouble to insert a slip of moistened ozone-test paper into the end of the tube which transfers the gas from the retort and wash-bottles to its receptacle. The resulting blue color will be prompt in showing itself, and of a marked intensity. If the gas-receiver be the usual metal gasometer, suspended over water, this ozonic principle will gradually disappear. After some hours standing in contact with metal, a fresh test-paper will show but faint reaction, and at the end of twenty-four or forty-eight hours no reaction occurs, all the contained oxygen becoming comparatively if not wholly passive. As hydrogen dioxide is by some considered practically a solution of liquefied ozone, it occurred to me that it would supply a means of ozonizing both atmospheric air and passive oxygen. Practical experimentation has proved the correctness of this surmise. The process is neither expensive nor difficult, but it requires some care and patience on the part of the practitioner or his assistant, and on that account will not be at once generally adopted.

Passive oxygen may be slightly ozonized by merely passing it through one or more wash-bottles which are fitted with either glass or hard-rubber pulverizing tubes, and partly filled with a strong solution of hydrogen dioxide. The process can be greatly intensified by interposing between the container and the patient an atomizing globe or inhaler in which, by means of an air-receiver and nebulizer, the same solution is constantly kept in a finely nebulized state, or by means of a glass globe, with two openings, packed with saturated asbestos, chopped sponge, sphagnum, or other suitable material. The best results in the use of this agent, as indeed with any other remedy, are attainable only by a careful observance of all the essential conditions. In some cases passive oxygen will afford little or no relief, whereas prompt results will follow the use of nascent or ozonized gas. If, under any circumstances, passive gas only is obtainable, then it should be exhibited in liberal or almost *unlimited quantities*, in order to effect the expected or desired results.

If freshly-made or nascent gas is received and retained in pure-gum gas-holders instead of in the ordinary metal gasometers, it will retain its ozone principle much longer than otherwise.

Those who have paid little or no attention to the quality of the gas they have used will be decidedly and agreeably surprised at the difference in results between stale and passive oxygen, with which the market is now rather too well supplied, and the perfectly fresh, nascent, or "active" article, which can, as above suggested, be secured by any physician with very little trouble and at merely nominal expense. For personal use I have transformed an ordinary oxygen generator into what I term an ozonizer. With a few comparatively inexpensive additions, any such apparatus can be made practically satisfactory for the purpose named.

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CHOREA CONSIDERED AS A NEUROSIS OF DEVELOPMENT.

REFERENCE was made in this Journal some two months ago to Dr. Clouston's interesting articles in the current numbers of the *Edinburgh Medical Journal*. At that time he had only described such neuroses of development as are incidental to childhood from birth to the age of seven years. This is the period during which the brain grows most rapidly. Chorea, however, occurs in the great majority of cases between the ages of six and fifteen years, and is classed by the author with some forms of epilepsy, spasmodic asthma, somnambulism, migraine, and certain eye diseases—such as myopia and divergent strabismus. All these affections are incidental to the intermediate period of life between the periods of greatest brain growth and of highest functional advance. Looking to the physiological and psychological development of the brain, he calls this period that of the co-ordination of motion and emotion. Sensation, special and common, and its organs have been developed; muscular co-ordination has progressed far; and many of the mental faculties—such as memory, fancy, and emotion—have acquired some strength; but muscular action has not been fully co-ordinated with feeling, and this is the period of life when that co-ordination takes place. The inco-ordinated movements of chorea show themselves first in the mind-muscles of the face—those of expression. Mental and emotional impressions are very potent causes of the disease. It is a disease, like hysteria, of towns and town-life or of civilized races. In the author's opinion, the most reasonable hypothesis as to its seat is that the basal ganglia are at fault, and just at the time when the co-ordination of their motor functions with mind is being perfected, and when their full use as motor servants to the rapidly developing higher mental centers in the cortex is being completed.

Dr. Clouston admits that the disease has a close relation to the rheumatic diathesis, and in certain cases to acute rheumatism. He believes, however, that there is always a neurotic heredity even in the rheumatic cases; a combined rheumatic and neurotic heredity seems its very strongest predisposing cause. It is almost always accompanied by mental disturbances of a mild kind, consisting of inco-ordinated mental action, derangements of feeling, and often hallucinations of hearing. It is usually a transitory neurosis, and, as bodily development proceeds, it tends to terminate naturally in recovery.

The author states that he constantly meets with chorea in the children of his insane patients, in the children of dipsomaniacs, and in those of epileptics. Its relation to epilepsy is very close. He cites the case of a girl who had convulsions during the first dentition, chorea at eleven, and hysteria soon after, but who at eighteen seemed perfectly well in nutrition, nerves, and mind, having through the process of further development alone got over all tendency to these neuroses of early development; she had literally "outgrown" them. Other cases are given illustrating the developmental character of chorea and its relationship to other neuroses of the period of childhood.

TRAUMATIC IDIOCY.

THE same author, in the Morison Lectures, reported in the *Edinburgh Medical Journal* for April, 1891, devotes considerable time to the consideration of the ætiological relation of traumatism to idiocy. Most authors agree that certain cases of idiocy are to be attributed to injury. It is certainly a fact that parents are prone to find a cause for any defect in some accident, bodily or mental, resolutely shutting their eyes to manifest hereditary weakness. According to Dr. Ireland, the injuries to be considered are those inflicted by attempts to produce abortion as well as injuries during labor caused by a deformed pelvis or the use of the forceps. We also have to deal with concussion and compression and hæmorrhage from the meninges, as well as destruction of the gray or the white matters of the brain. What seems like a slight injury is sometimes followed by most serious results, but hereditary predisposition has no doubt much to do with this. Traumatism is thus reduced to a rare exciting cause, heredity being actually the real cause. While it has been asserted that the use of the obstetrical forceps is a common cause of idiocy, Dr. Down has shown that in only three per cent. of the births of idiots was the forceps employed. Dr. Mitchell, after thorough investigation into the histories of a very large number of idiots and imbeciles, came to the conclusion that tedious labor and the use of the forceps were causes of those conditions. He also pointed out the fact that a large proportion of idiots were first-born children, and is inclined to attribute many cases to pressure on the head during prolonged labor. In this belief Dr. Clouston is not wholly willing to coincide. There are certain cases, however, where traumatism must be assigned as the exciting cause of the arrest of brain development. This is readily understood when the injury has caused some gross lesion of the brain, such as might occur from an apoplectic clot. It is not so apparent why a fall or blow is sometimes followed by a change in the normal development of certain of the brain functions. In such cases the arrest is on special lines of its own, and does not follow the course taken by purely hereditary cases. It is more limited, and does not affect the whole of the brain functions. The facial expression is apt to be better, the teeth are not affected in the same way, and the bodily movements are more natural than in the hereditary types of idiocy and imbecility.

MINOR PARAGRAPHS.

INFLUENZA AND MELANCHOLIA.

THE annual report by Dr. T. S. Clouston, medical superintendent of the Royal Edinburgh Asylum, notes an increase, during the year 1890, in the cases of melancholia. According to the ordinary experience in former years, the proportion of admissions of melancholic patients has been 37 per cent. less than of those with mania; but in 1890 there were more of the former type than of the latter—namely, 140 patients having melancholia to 134 having mania, or an apparent total increase of over 40 per cent. Another marked fact noted regarding the admissions was the low average of the general health of the new patients: the general condition of all the inmates, old as well as new, was lower than usual. Dr. Clouston offers as an explanation of these unprecedented experiences the influence of the epidemic of influenza in the early part of the year 1890, which was excessively depressing to the nervous tone and lowering in many ways to human vitality. He believes that the European world's nerves were "rattled" by the epidemic, and that they have hardly yet recovered their normal tone. He is willing to admit, in this regard, the possible alternative question of whether the prevalence of the influenza was a sign that European humanity was in a lowered state of vitality and so constituted a fit nidus for the influenza germs to propagate in, a condition that was not improved by the sunless, summerless general character of the mid-year. But in regard to the unprecedented number of melancholic patients there was no room for doubt that it must be charged to the epidemic. In his experience, the poison seemed to "burn out" the nervous energy and leave the brain in some cases incapable of recuperation. The production of pauper insanity, he notes in this connection, is not keeping pace with the increased population of the great city which he serves. There are in Edinburgh larger masses of population, and at the same time saner ones, than lived there fifteen years ago. And in fact the yearly production of pauper lunatics has risen little, if any, during the past ten years.

THE BOSTON CITY HOSPITAL.

The report for the year 1890 of this progressive charity has recently been published. It describes, among other new feateres, a "playstead" which has been arranged, for the children of the hospital, on the roof of the operating room, with a floor-space of eighteen by twenty-four feet, surrounded by wire guards. A medical library building has been planned and completed for the use of the staff. A Home for Convalescents has been purchased and fitted out in a liberal manner during the past year; it is intended for the present to accommodate women, girls, and young boys, and has room for thirty-six patients who are recovering from acute diseases. There is a new surgical out-patient department well under way. The present number of beds is 480, but this is not adequate to the constantly increasing demands. Thirty trained nurses were graduated from the Training School in this, which was its thirteenth year.

A NEW TREATMENT OF TUBERCULOSIS.

On the 6th of July Dr. Lannelongue made a communication to the Paris Academy of Medicine on a new method of treating tuberculosis. This consists in applying chloride of zinc, which he alleges produces the transformation of morbid tissue and the almost immediate formation of connective tissue. He stated that he had used this method in twenty-three cases of tuberculous disease of the articulations, all of which had been cured. Of twelve cases of suppurating tuberculosis, two had resulted in cure, while the other patients, who were first inoculated on June 4th, were beginning to make satisfactory progress. Dr. Lannelongue stated that with his method there was a total change of tissue, and that persons who had been declared cured two months before were now pursuing their ordinary vocations, and that no relapse had been reported. On the following day Dr. Lannelongue concluded his communication to the Academy of Medicine, explaining his treatment from a technical point of view, and also the mode of application. Dr. Lannelongue's object is to bring about a sclerosis of the tubercular tissue; for, as chloride of zinc produces a fibroid change in the normal tissues of animals, so the same transformation is brought about by that agent in morbid tissues, including tubercular. The chloride of zinc is conveyed not into the actual tubercular foci, but outside and around them only, thus modifying as early as possible the peripheral tissues as well as the area already invaded by the bacillus. The elements of the morbid growth—destroyed by the chloride of zinc—are reabsorbed, while the young cells form a firm fibrous tissue. Dr. Lannelongue's communication met with a most enthusiastic reception.

THE COMPOSITION OF THE EMBRYONIC MUSCLES.

Mr. V. F. Jacoubovitch, as is related in *Vratch* for March 21st, has experimented mainly on the muscles of the calf and those of one human embryo, and his results are: 1. The amount of water in the muscle decreases with the age of the embryo. 2. The solid principles and extractives gradually increase. 3. The general amount of cholesterin, leucine, and fat increases gradually with the development of the embryo. 4. Creatinin diminishes, while creatin increases with the age of the embryo. 5. Phosphoric acid increases, and sulphuric and hydrochloric acids remain stationary during embryonic life. The results make the author differ in opinion as to the origin and physiological rôle of cholesterin, creatin, and phosphoric acid with Liebig, Kühne, Ranke, and others, who are quoted as believing creatin and cholesterin to be waste products and as being derived from increased oxidation of albuminoid tissues, whereas both were found to increase in amount in the muscles with the growth of the embryo; and, considering the inactivity of the embryo, it is hardly correct to accept the view that they are waste products. He also disagrees with Flint's idea that cholesterin is the waste product of the activity of the nervous system. The amount of cholesterin was found the same in the newly born and in adults, regardless of the vast difference in the activity of the nervous system. The author's opinion is that the embryonic muscles with the other organs are the storehouse for cholesterin, phosphoric acid, and leucitin, which are immediate elements of composition of the nervous system, the latter consuming those elements during the period of its development after birth.

THE TREATMENT OF TRISMUS NEONATORUM WITH SULPHONAL.

The *Journal de médecine de Paris* for June 21st refers briefly to a case originally reported by J. Berenyi in the *Therapeutische Monatsheft*. An infant eight days old had suffered from trismus for three days. It had five attacks in five hours. Berenyi prescribed sulphonal by the mouth and by the rectum, in doses of three grains. The attacks diminished in intensity and in frequency immediately after the institution of the treatment. Recovery was complete in six days. During this period the child had taken, in all, a hundred and fifty grains of sulphonal without the occurrence of somnolence or any other unpleasant secondary symptom.

ERGOTINE IN CHRONIC BLENNORRHŒA.

According to the *Viadomosci Lekarski*, cited in the *Gazette des hôpitaux* for June 11th, Dr. Roicki has had great success in the treatment of chronic blennorrhœa by the use of ergotine. In addition to giving the drug internally in pill form, he makes use of a solution (five grains to ten ounces of distilled water) as a urethral injection several times daily. The Polish physician maintains that the treatment results in a rapid and permanent cure.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 21, 1891:

DISEASES.	Week ending July 14.		Week ending July 21.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	0	0	0	0
Typhoid fever	23	3	39	4
Scarlet fever	146	37	135	15
Cerebro-spinal meningitis	4	5	0	4
Measles	240	17	211	11
Diphtheria	88	31	77	31
Small-pox	2	0	1	0
Varicella	1	0	1	0
Whooping-cough	0	5	0	5
Erysipelas	0	0	0	0
Mumps	0	0	0	0

The American Electro-therapeutic Association will hold its first annual meeting at the hall of the College of Physicians, corner of Locust and Thirteenth Streets, Philadelphia, on Thursday, Friday, and Saturday, September 24th, 25th, and 26th, under the presidency of Dr. G. Betton Massey. Physicians interested in the discussion of electricity in medicine are invited to attend without further notice.

The University of Vermont.—Dr. Condict W. Cutler, of New York, has been appointed professor of skin and venereal diseases, to succeed Dr. R. W. Taylor, who has resigned.

The Medical Department of the University of Pennsylvania.—Dr. J. P. Crozer Griffith has been appointed clinical professor of diseases of children.

The Death of Dr. Frank Hamilton Potter, of Buffalo, took place on Thursday, the 16th inst. The deceased, who was in his thirty-second year, was a son of Dr. William Warren Potter, of Buffalo, and was associated with his father in the editorship of the *Buffalo Medical and Surgical Journal.*

The Death of Dr. Albert Skinner, of Youngstown, N. Y., took place on Saturday, the 18th inst. The deceased was eighty-four years old, and is said to have been the oldest practitioner in Niagara County.

The Death of Dr. Ovid P. Wells, at the age of eighty-six, took place at his home, in New York, on Wednesday, the 22d inst. The deceased was a native of Massachusetts.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 12 to July 18, 1891:*

PAGE, CHARLES, Colonel and Surgeon, heretofore assigned to duty in the Division of the Atlantic, will report to the commanding general, Department of the East, for assignment to duty as medical director, and ALEXANDER, CHARLES T., Lieutenant-Colonel and Surgeon, will report for assignment to duty as attending surgeon, New York city, N. Y.

MCCLELLAN, ELY, Major and Surgeon, heretofore assigned to duty in the Division of the Missouri, will report to the commanding general, Department of the Missouri, for assignment to duty as attending surgeon, Headquarters Department of the Missouri, and examiner of recruits at Chicago, Ill.

BROWN, PAUL R., Captain and Assistant Surgeon. Leave of absence extended one month.

COCHRAN, JOHN J., Captain and Assistant Surgeon. Leave of absence on surgeon's certificate of disability extended three months.

Society Meetings for the Coming Week:

TUESDAY, *July 27th:* Medical Society of the County of Putnam (annual), N. Y.

WEDNESDAY, *July 28th:* Gloucester, N. J., County Medical Society (quarterly); Middlesex, Mass., North District Medical Society (Lowell).

Obituaries.

JOHN LEDYARD VANDERVOORT, M. D.

DR. VANDERVOORT died on Sunday, the 19th inst., at his home, in New York, at the age of eighty-three years. He had been confined to his house for a number of months, and his death was not unexpected. He was a graduate of the College of Physicians and Surgeons, of the class of 1833. He was a member of the house staff of the New York Hospital from 1831 to 1833, and afterward served for a number of months, in 1863 and 1864, as house physician when an unusual demand was made upon the resources of the institution by the admission of great numbers of sick and wounded soldiers from the Army of the Potomac. He served the same institution as librarian from 1837 to 1890, and in that office he was of the utmost service to those who had occasion to make use of the library. In 1838, in conjunction with Dr. Post, Dr. Buck, and Dr. Macdonald, Dr. Vandervoort taught in the Broome Street School of Medicine, a school established by them to supplement the instruction given in the colleges empowered to grant the medical degree.

Dr. Vandervoort was a scholarly and genial gentleman. He was best known in his character as a librarian, in which he was noted for his intimate knowledge of the contents of the books contained in the particular library over which he presided, and for the pleasure he took in placing that knowledge at the disposal of readers in the library.

Proceedings of Societies.

SOCIETY OF THE ALUMNI OF BELLEVUE HOSPITAL

Meeting of January 7, 1891.

Dr. R. H. SAYRE in the Chair.

Antiseptic Surgery in Private Practice.—Dr. W. R. BALLOU exhibited a case of compound fracture of the leg with a view to showing what could be accomplished in the way of antiseptic surgery in private practice. The tibia and fibula were both fractured, and were protruding through the wound in the soft parts. Much of the credit for the good result obtained was due to the fact that the attending physician, Dr. Washburn, had promptly cleansed the injured parts and applied an antiseptic dressing pending a more thorough surgical examination of the injury. There had been extensive laceration of the gastrocnemius, which had been sewed up with catgut, and then the whole wound closed, after bringing the bones into apposition. An antiseptic dressing had been applied, and a plaster-of-Paris splint from the toes to the pelvis. The highest temperature, 100·5°, had been reached on the next day, and after the second day it had been normal. The primary dressing had not been touched for two weeks, but, owing to some soiling of the dressing, a fenestra had been made in the plaster and a small granulating spot treated in this way. One month after the operation, the parts being entirely healed, the splint had been renewed, and in seven weeks from the time of the injury all appliances had been left off and the boy had walked about perfectly well.

Dr. L. Hotchkiss exhibited a patient in whom a fracture of both patellæ had been treated without wiring and with most excellent result.

Some Illustrative Cases of Neurasthenia and a Study of that Condition with Special Reference to its Causation and Prevention.—Dr. Charles E. Lockwood read a paper with this title. (See page 92.)

Dr. R. H. Sayre thought that the pernicious effects of the overcrowding in our schools deserved more attention than they had hitherto received from physicians. He had had many girls brought to him who were the victims of parental pride and overwork in crowded and ill-ventilated school-rooms.

Some Remarks on Koch's Method.—Dr. H. P. Loomis said that, although much had been said of late upon this subject, a few remarks upon the clinical investigations which were being carried on in Bellevue Hospital might prove of interest. Those cases were selected in which a previous history was obtainable, and they were chosen with a view to showing the different phases of the disease in the lungs. Previous to beginning the inoculations they were watched for one week, and the variations of temperature during that time carefully recorded. The patients were put to bed and, with few exceptions, the initial dose was one milligramme. Usually the only very marked reaction was that following the first injection. The temperature was taken every three hours; the sputum was examined daily by Dr. Byron and Dr. Le Fevre for tubercle bacilli, and its quantity noted. Out of eight cases, four had shown a slight decrease in the number of bacilli, two no change, and two a slight increase in the number; hence on this point the results were purely negative. The patients had been under treatment for three weeks and, in accordance with Koch's plan, should be treated for three weeks more, so that from this standpoint alone conclusions were as yet premature. All the patients had gained in weight, the increase during the second week being fully as great as that of the first week. After the first injection the physical signs would undergo marked changes. Where there was consolidation before the injection this would be increased, and there would be bronchial breathing, with an increased number of râles. These changes were very transitory, usually lasting only about twenty-four hours, and a study of the records for the past three weeks failed to show any noteworthy change in the physical signs.

The speaker said he understood that Koch did not examine the lungs at all, but based his conclusions entirely upon the disappearance of the tubercle bacilli from the sputum. When this occurred at the end of four or six weeks, the patients were considered by him to be cured. In one of the cases in Bellevue Hospital the physical signs were thought to point distinctly to the existence of a cavity, yet there were no bacilli in the sputum, and the injection of ten milligrammes had failed to produce any reaction. Of course, the physical signs might have been due to an enlarged bronchus or to fibroid changes. The experiments so far were decidedly negative as regarded phthisis, but there could be no question about the marked changes which occurred in cases of lupus submitted to this treatment.

The speaker said that he had been informed while in Berlin that Koch had been secretly working upon this subject for four or five years in a private hospital of thirty beds which he had established in a private house. He had been in the habit of spending a portion of every afternoon working entirely alone in the old kitchen, where he had collected and labeled two thousand bottles of sputum and a large number of drugs with which he had been experimenting. It was not until the 22d of last September that he had come out of this room and announced to five gentlemen associated with him that he had discovered this so-called "lymph." Four cases had then been placed at his disposal for the purpose of testing the new treatment. At the end of five weeks the bacilli had disappeared, and the patients had been discharged cured. These were the only published cases of Koch's about which he had received any information.

As regarded the effect of the injections upon joint disease, he could only say that one patient with osteitis of the shoulder joint had received four inoculations in Bellevue Hospital. The pain had disappeared, and the shoulder joint had become more movable.

He had just examined a small fragment of lung removed from a patient who had been subjected to the Koch treatment and who had died. The autopsy had been made by Virchow. The specimen showed under the microscope, in addition to the ordinary changes of advanced tubercular disease, that the air cells surrounding the tubercular areas were filled with a peculiar granular material, and around this there was intense congestion. He did not consider that the injections were of any diagnostic value, for just as decided reactions had been obtained in a case of epithelioma as had been observed in tuberculous patients, and in one case which he had seen in Berlin the bacilli had been found in the sputum and yet there had been no reaction.

Exhibition of Ribs with Exostoses and Absorption of Bone, from a Drainage-tube in a Case of Empyema.—Dr. A. Brothers presented a report of such a case. (See page 98.)

New Inventions, etc.

LYMAN'S DIRECT AXIS MIDWIFERY TRACTOR.*

By Albert B. Lyman, M. D.,
BALTIMORE, MD.

The subject of direct axis traction can not be regarded in the light of a novelty since the invention of Professor Tarnier's forceps, which has, for quite a number of years, been the basis of several modifications.

Every practitioner of obstetrics is presumed to know—

1. That a pelvic curve is necessary to the proper adaptation of the instrument to the natural curvature of the female pelvis.

2. That traction made on the handles of a forceps having a pelvic curve has a tendency to drag the head of the child against the pubes of the mother, with a consequent liability to injure both mother and child.

These two facts being fully recognized, various attempts have been made to counteract this tendency to jam the fœtal head against the maternal pubes. Perfectly straight forceps can not well be used, in view of the anatomical fact that the direct line of traction passes through a point about the junction of the coccyx with the sacrum. It therefore becomes necessary to bring the power outside and behind the sacrum. This has to some extent been accomplished in all forceps made on the plan of Simpson's and Barnes's, the former having a pair of shoulders around which the operator can grasp the instrument with his fingers, and in the latter insert his index finger into a shank-ring. A combination of these two devices is known as Tiemann's modification of Simpson's forceps. In all of these one hand is used as a fulcrum against which the handles are pressed by the other hand, acting as levers of the first and third kinds, an awkward combination, and one very tiring to the practitioner.

Dr. Aveling's forceps, in shape somewhat like a capital S or italic *f*, constituted a step in the direction of axis traction, the desirability of which had long been recognized by obstetricians.

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* An extract from a paper read before the Medical Society of the State of North Carolina.

Professor Tarnier's instrument, however, solved the problem of axis traction, but it has the drawback of being expensive and complicated.

The tractor illustrated by the accompanying cuts aims to meet all the requirements of axis traction, and is intended to be used with any kind of curved forceps, by having the hook (*d*) hooked into the space between the shanks, after the forceps is in position, and lashed at the point (*j*) by means of an ordinary piece of tape or strip of cotton cloth, to prevent the traction rod (*c*) from having any lateral play, as well as to keep the handles of the instrument together, a simpler means than a metallic clamp would be (Fig. 1).

The screw-thread (*e*) is intended to allow of the handle of the tractor being brought nearer to the traction rod or farther away, according as the forceps used has a lesser or greater pelvic curve. The less the curve, the less distance the handle should be from the handles of the forceps, and *vice versa*.

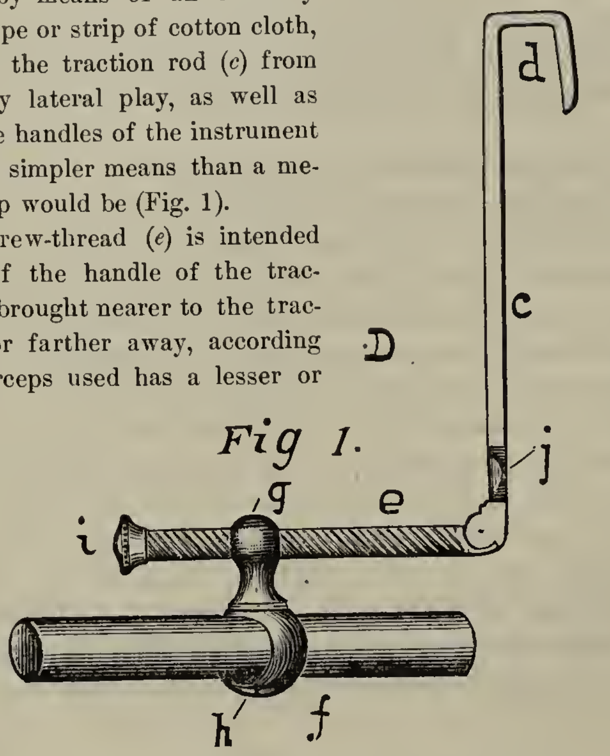


Fig 1.

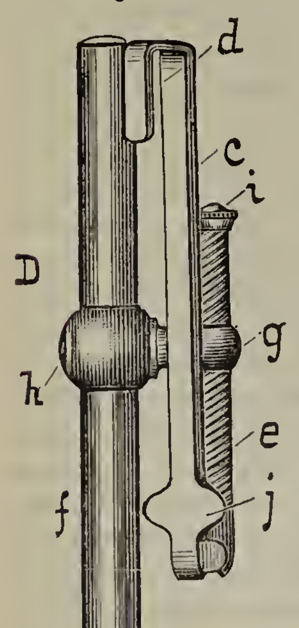
Fig. 2 represents the tractor folded up, so as to be more readily packed away, or put into the pocket or satchel.

Fig. 3 shows it attached to a forceps (Comstock's) similar in shape to Simpson's, Barnes's, and Tiemann's.

It will be found that with this tractor, as in the case of Tarnier's forceps, far less expenditure of force is required to effect delivery than without it.

As this tractor can be attached to any style of forceps, it particularly meets the needs of those who have already provided themselves with midwifery instruments; with it any forceps can be converted into a "Tarnier."

Fig 2.



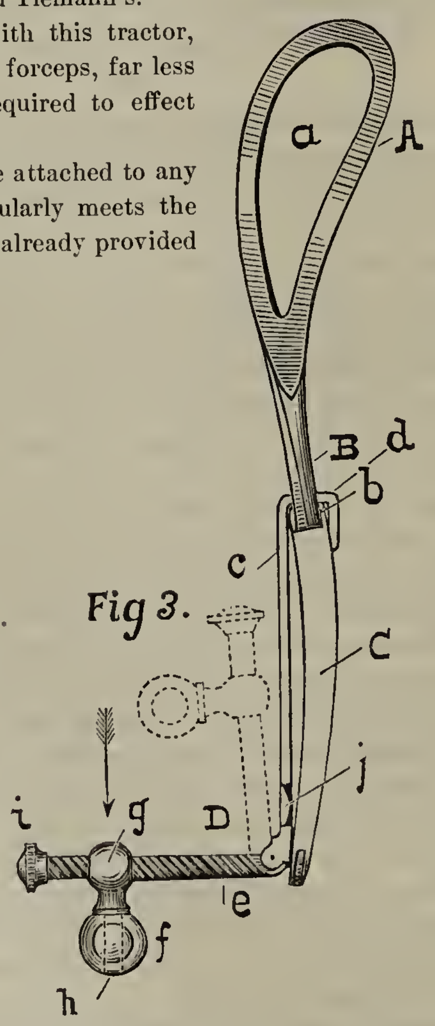


Fig 3.

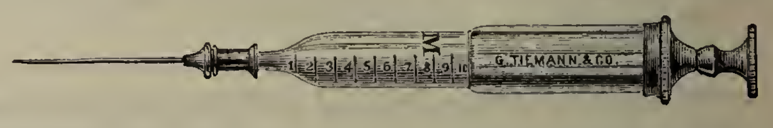
The tractor is made by the well-known firm of George Tiemann & Co., 107 Park Row, New York.

2100 St. Paul Street.

AN IMPROVED HYPODERMIC SYRINGE.

By Albert B. Lyman, M. D.,
BALTIMORE.

The subjoined cut illustrates a hypodermic syringe which Messrs. Tiemann & Co. have recently made in accordance with my suggestions, and on the principle of a similar instrument which I had in 1870 in the Prussian army at the siege of Metz. The following points may be of interest to your readers: The piston works in a metallic cylinder, of somewhat larger caliber than the glass tube, engraved with a minim scale. 1. The cylinder is made of metal, because of the difficulty in getting a glass tube of the same bore from end to end. The metal cylinder being absolutely true, the piston can not be tighter in some places and looser in others. 2. The diameter of the metal cylinder is purposely greater than that of the glass tube, so that it can be made shorter than would be the case were they both of the same caliber.



In drawing out the piston a vacuum is formed in the metal cylinder, and the hypodermic liquid rushes in and up to any desired mark on the minim scale, but without coming into contact with the piston.

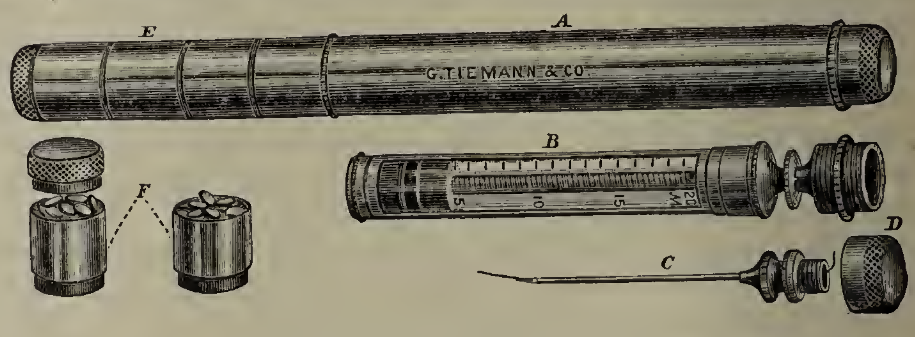
This last is a matter of some importance. First, because the syringe is thus rendered aseptic; and, second, the leather of the piston can not become dried up or shriveled by contact with any fluid which might have a tendency to injure it—for instance, brandy. The piston can always be kept soft with oil or other suitable lubricant, without any danger of contaminating the injection fluid, in view of the fact that the fluid and piston can never touch one another, an air cushion always intervening.

The needle is attached to the end of the glass tube, graduated to minims, by simply pressing the latter into a socket lined with gutta percha. By removing the needle, the instrument can be packed into a shorter case. A syringe of this size is designed for small doses of concentrated solutions, as it is the opinion of many practitioners that with injections of smaller bulk the tendency to produce abscesses is much lessened.

A COMPACT HYPODERMIC SYRINGE.

By James A. Nichols, M. D.

Having been so frequently caught without a hypodermic syringe when I most needed one, I set about devising one so simple that I might expect it to be always in working order, and that it would take up so little space in the pocket that I should be likely to have it with me when needed. Through the assistance of Mr. William Harz, of Tiemann & Co., I accomplished my purpose, and the result is well illustrated in the accompanying cuts. The syringe (A) complete, including case compartments (E and F) for tablets, occupies no more space in the pocket than a fountain pen or pencil. It is of metal, nickeled, four inches and three quarters long and seven sixteenths of an inch in diameter, and has four compartments for tablets, which may be increased or diminished in number if desired. The name and size of the tablet are neatly engraved on the compartments as ordered. The syringe (B) is of twenty minims capacity, and its piston is fitted with an oil chamber to prevent the packing drying out. The needle is inclosed in the piston rod and covered with a cap (D).



Miscellany.

Hypnotism.—At a meeting of the Section in Medicine of the Royal Academy of Medicine in Ireland, held on April 17th, Dr. Cruise read a paper on Hypnotism. He began by describing the state of curiosity and doubt into which he had been thrown by extended reading on the subject, which led him ultimately to go to Nancy, and study there with Liébault and Bernheim. He related at some length what he had seen, and explained the favorable impression made upon him regarding hypnotism. Then he proceeded to tell his experiences of the clinical instruction in hypnotism by M. Luys, at the Charité in Paris; likewise that of M. Auguste Voisin and M. Guinon, at the Salpêtrière. Subsequently he discussed the utility of hypnotism, pointing out the cases best suited for it, and giving his own experiences, and also replied to the objections, physical and moral, which have been urged against it. He concluded by urging all to study the subject practically before committing themselves to an adverse opinion.

Dr. G. C. Kingsbury asked that hypnotism should be accorded a trial in Ireland, on the ground that thoughtful physicians in France, Germany, Russia, Belgium, Holland, Austria, Spain, Italy, Greece, Denmark, Sweden, Norway, Switzerland, Portugal, and America had practically tested it, and declared it useful. He explained that he spoke only of hypnotism as taught at Nancy, and pointed out that when Charcot spoke of hypnotism he referred to certain manifestations of disease met with rarely among hystero-epileptics, whereas what was meant by hypnotism at Nancy was not a disease, but a method of treatment. That this method of treatment was based on common sense was shown by reference to the every-day experience of physicians of the effect of the mind or imagination on the body, and quotations in support of this were given from Stokes, Graves, Paget, and Trousseau. Hypnotism sought by exalting this power to heighten its effect. Hypnosis was then defined, and some of its phenomena were explained.

The speaker then stated how hypnosis could be induced, and showed that the principle underlying all the methods was the continued stimulation of one or more of the senses, with the constant suggestion of sleep. The further process of treatment was then detailed, and it was shown how the verbal suggestion of relief, of which it mainly consisted, could be greatly emphasized, according to the nature of the case —*e. g.*, by friction in rheumatism or neuralgia, by inducing the patient to inspire deeply in pleuritic affections, by ordering the patient to walk in functional paralysis, etc. The process of dehypnotization, or waking, was also explained. The after-effects were also gone into, and the speaker stated that the opinion that the subjects of hypnosis were greatly fatigued after the process was erroneous. The question, "Who can hypnotize?" was next discussed, and he gave it as his opinion that any medical man who would take the trouble to study the subject could hypnotize, but here, as elsewhere, individual qualities would tell, some men always being more successful than others.

"Who can be hypnotized?" was then considered, and it was shown that, as distinctly the majority of people were susceptible, it was more important to know who could not be hypnotized. Some writers held that 95 per cent. could be influenced, others 85, 80, and so on; but Dr. Kingsbury believed he was within the mark in saying that 70 per cent. were hypnotizable, though only 15 per cent. would be found to be somnambulists. If this was correct it effectually disposed of the popular notion that only hysterical or neurasthenic persons were susceptible. Children between seven and fourteen years of age were found to be the best subjects, 50 per cent. being somnambulists. Hysterical people were very difficult subjects. Lunatics were about the worst subjects, while with imbeciles it was practically impossible. Phthisical patients were particularly susceptible. Sex did not exert any marked influence. Nationality did not seem to be an important factor either, though the Oriental races were held to be the most easily influenced. Ill-health was by no means an essential, some of the best subjects being athletes.

What cases should be treated? The speaker held it to be justifiable to try hypnotism in all cases where a distinctly nervous element could be detected. All functional disorders might also be treated by means of hypnotic suggestion. He disclaimed any desire to replace the ordinary methods of treatment, but thought that in many of the cases here indicated hypnotism might be used in conjunction with drugs, while in some it might be tried alone.

In midwifery, hypnotism seemed justifiable wherever any anæsthetic was thought necessary; but he advised any one wishing to try it to hypnotize the patient several times beforehand, to familiarize her with the process, and also to ascertain what degree of anæsthesia could be produced.

He thought hypnotism might be employed in many cases of ovarian pain and menstrual derangement. It seemed absurd to think that painful menstruation could be rendered painless, or that amenorrhœa or menorrhagia might be corrected by verbal suggestion during hypnosis made beforehand; nevertheless such benefits were frequently seen to follow hypnotic treatment. He left his hearers to say whether *post hoc* was equal to *propter hoc* or not.

The alienist was justified in trying hypnotism, though lunatics were very hard to affect; however, patience would do wonders, Voisin having succeeded with 10 per cent. of his patients, and Foue, of Zurich, having hypnotized 14 out of the first 33 patients tried. The results of these gentlemen were very encouraging.

Moral ailments seemed to offer a wide field for the trial of hypnotism, and included cases of inebriety, morphinomania, cocainomania, kleptomania, masturbation, etc.

Before the introduction of chloroform Braid, Liston, Velpeau, Broca, and others had performed many operations painlessly by means of hypnotic anæsthesia. Esdaile, of Calcutta, had also recorded over two hundred cases of operation, including lithotomies and the removal of immense tumors in elephantiasis, performed in this way without pain. It was nowhere proposed now to supplant our ordinary anæsthetics by hypnotism, but the speaker declared that if he knew that a patient could be hypnotized deeply, so as to be completely anæsthetized, he would much rather employ hypnotism than chloroform for operative purposes. The dangers of hypnotism were shown to be grossly exaggerated. The speaker had failed to find any case where insanity could be shown to have been produced by hypnotism employed by a medical man.

He thought it was time that the practice of hypnotism should be confided to the medical profession alone *by right*, but also maintained that scientists should be *allowed* to conduct hypnotic experiments for the elucidation of physiological and psychical problems. All that he asked was a careful and scientific testing of hypnotism. If it was found useful, let us adopt it when suitable; if it was found to be delusive, let us reject it.

Dr. Foote wished to hear a distinction between mesmerism and hypnotism, because many great men had made shipwreck of their reputations on the rock of mesmerism. He thought that "inorganic functional disease" was the feeding-ground for every form of quackery. A liberal construction of the oath of Hippocrates seemed to him to provide against the exertion of a strong over a weak will. He was anxious to hear how long the cures of dipsomania had lasted.

Dr. Joseph Redmond mentioned the case of a girl, aged nineteen, who was admitted into the Mater Misericordiæ Hospital suffering from severe pain in the side for five years. The pain had become much aggravated during the last two years. All methods of treatment had been previously tried in other institutions without benefit. Hypodermic injections, Corrigan's button, counter-irritation in various forms, were now tried, but all these measures failed to give relief. Dr. Cruise hypnotized the patient on five or six occasions, and completely cured her of the pain which had caused her so much trouble and lasted for such a length of time.

Dr. McCullagh mentioned two cases in which he had operated. In April, 1886: T. M., B. L., aged twenty-eight. Operation, circumcision; duration, ten minutes; time occupied by operation, seven minutes; mode, rapid counting; number counted up to anæsthesia, 27; no pain. In September, 1886: T. C., medical student, aged twenty-two. Operation, circumcision; duration, twelve minutes; time, twelve minutes;

mode, rapid counting; number, between 80 and 100; painless until insertion of sutures.

Dr. J. J. Murphy did not wish to enter into any discussion as to the merits or demerits of hypnotism or the two schools of training in Paris; he would confine himself to the purely clinical side. His first case was one of dipsomania in a lady, every form of treatment having failed. She remained three months under treatment. She lapsed once in the end of the second month from mental worry. However, she at once came and told him. Since then, five months afterward, she went through a very severe ordeal unscathed. She now felt well and happy. She had suffered from insomnia and headache, which were cured by suggestion. Another case was one of masturbation in a female, who was reduced to a miserable state of existence, with a tendency to suicide. She had been under treatment for six weeks, and was now considerably improved—in fact, felt quite hopeful of ultimate cure. The speaker mentioned other cases of various sorts.

Mr. Edward Hamilton thought there was no need to quote a number of their cases of hypnotism, because it had been proved beyond doubt that hypnosis could be produced; but he wished that this subject should be discussed calmly and with dignity, as it involved many important issues. He had been struck with awe at the absolute fact that the immaterial principle could pass from one to another—that the mind of the operator could penetrate the body of the subject. It was an interesting inquiry how far such power was influenced by distance. Was it governed by the law of other forces as to the diminution of force by distance? When a young practitioner, he remembered a case of fever in which all narcotics failed. He sat by the patient's bedside, and, fixing his eyes on him, wished intensely, almost prayed, that he might sleep. After a few minutes his eyes drooped, and he slept for some hours, which caused him the greatest benefit.

Dr. Conolly Norman said the evils of hypnotism had undoubtedly been absurdly exaggerated; nevertheless, there were dangers. The classical case of Heidenhain's brother was cited, also a case of the speaker's, in which he believed general paralysis had originated in the constant practice of hypnotism. The extreme moderation of Dr. Cruise and Dr. Kingsbury would do as much service to hypnotism as the most extravagant statements of Voisin had done harm. Percentages of cases of insanity treated were very deceptive, unless we were informed what were the forms of insanity, and how many there were of each form. From a large asylum one might easily select a large number of patients who could be hypnotized. Many could not be hypnotized, and some would be injured if they were. It was waste of time to try hypnotism in cases of acute mania or severe cases of melancholia. There could be no doubt of the service which hypnotism could render, at least for a time, in dipsomania; but in true insanity good might occasionally be done, and many patients were quite susceptible. They were those with mild melancholia, certain conditions approaching paranoia, such as *folie du doute*, *Grübelsucht*, and the like. In ordinary cases of paranoia with fixed delusion it was usually impossible to hypnotize, owing to the patient's suspicion. It was at any rate a good thing to find a method of treatment being considered which appealed alone to the mind at a time when we had been recently told that the true scientific attitude was to look to every other organ in the body than the brain for the cause and the cure of insanity.

Dr. Fitzgerald made mention of two cases in which he had produced great benefit with hypnotism. In the first case, the patient had suffered from deafness and tinnitus, the latter of a very distressing character. The deafness was due to chronic catarrh of the middle ear of some years' standing, and, though no improvement was gained as regarded the hearing, the tinnitus became greatly lessened, and at times disappeared. In the second case, that of a young man, of a highly nervous temperament, who also suffered from tinnitus, great benefit had followed from the treatment.

Mr. Tobin asked Dr. Fitzgerald whether, in the case in which improvement was effected in a patient with organic disease of ear, any change was observed in the condition of the parts.

Dr. Fitzgerald replied—Certainly not.

Dr. Richard Hayes related two typical cases in which hypnotic suggestion had succeeded in relieving symptoms. The first case was that of a young woman who suffered from fixed pain in the hip of a year's duration, who, after four hypnotizations, was completely relieved. The second case was one of insomnia occurring in a woman recovering from sciatica, who had had only two hours' consecutive sleep for eleven weeks. She slept for eight hours after the first hypnotic sleep, and had slept soundly each succeeding night up to the date of the report.

In answer to Dr. Foote, Dr. Kingsbury explained that practically there was no difference between mesmerism and hypnotism. Dr. Foote had spoken of the wrecked men who had dabbled in mesmerism. But what had wrecked those men?—partly, perhaps, their own overzeal, but mainly the cynical sneering and malignant persecution of a prejudiced public. To-day there was a more generous and scientific spirit abroad, and it was to be hoped that no one would go back to the mere sneering of fifty years ago, which certainly would not pass now for argument. Dr. Foote thought that the phrase "non-organic functional disorders" exactly described the limits wherein hypnotism would be of service, and remarked with Ecourt that this had always been the "pasture ground of every form of quackery." The speaker gladly joined issue with him here, for he did not find that those who were familiar with hypnotism limited its employment to this particular field—and certainly Dr. Cruise did not—but found it useful alone, or in conjunction with ordinary remedies, in surgery, in midwifery, and in the treatment of many ailments outside the pale indicated by Dr. Foote, such as rheumatism, neuralgia, pneumonia, and tinnitus. But if for argument's sake it was granted that hypnotism was only applicable to non-organic functional disorders, and further granted that, as Dr. Foote implied, hypnotism was another form of quackery, was the reproach that of hypnotism or that of our present therapeutics, which was unable to cope with these very disorders? In branding hypnotism as charlatanism, Dr. Foote was branding as quacks men who were eminent in medicine, physiology, and psychology, and whose scientific instincts had led them, before either adopting or condemning hypnotism, to familiarize themselves with its phenomena. Dr. Foote had further scoffed at the idea of inebriety being cured by hypnotic suggestion, and thought that these cures were only the temporary repentances of drunkards recovering from a debauch, such as we all frequently witnessed. The speaker was astounded that a man of Dr. Foote's wide reading should be so little acquainted with the literature of this particular subject; if he would read what had been written, he would find well-authenticated cases of inebriates keeping sober for ten or twenty years, which periods certainly exceeded the length of alcoholic remorse. Mr. Hamilton's remarks had been particularly welcome, for, if men of his eminence and ability would seriously investigate hypnotism, we should soon be able to say whether it was of value or not. Mr. Hamilton wanted to know how he reconciled the statement that suggestions toward sobriety would take lasting effect with the opinion that once the subject crossed the operator's threshold, the latter's influence was at an end. What he had meant was this—that no fresh suggestion made by the operator would take effect on the absent patient. The case of insomnia mentioned by Mr. Hamilton seemed clearly one in which he hypnotized his patient by means of fascination. Dr. Conolly Norman thought that the speaker had minimized the risks of hypnotism, and mentioned the case of a general paralytic whose insanity, he thought, was due to hypnotism employed *nightly, for years*, for insomnia. In the first place, such prolonged use of hypnotism was very rare; and, secondly, might not the insanity have been due to the condition which provoked the insomnia? Dr. Norman considered it hopeless to try hypnotism in acute mania. Dr. Voisin seemed to have been very successful with such cases. Dr. Norman thought Dr. Voisin deserved in a measure the reception he had got at Leeds, on account of his wild extravagance. Perhaps Dr. Voisin did portray the rosy side of hypnotism, but one of the statements made by him, which was at the time considered most incredible, was that the menstrual functions or the action of the bowels could in any way be controlled by means of suggestion. Both of these statements had been amply corroborated since. Dr. C. E. Fitzgerald's cases of tinnitus seemed veritable triumphs, and nobody would accuse him of extravagance or fanaticism.

How to use Mydriatics.—At a meeting of the Philadelphia County Medical Society, on June 24th, Dr. Edward Jackson read the following paper:

The present purpose is to discuss methods, not indications, for using these drugs; but, in passing, it is worth repeating, since it is so often forgotten, that remedies of this sort are too powerful to be used indiscriminately. If one has not been able to make a positive diagnosis in a case of ocular inflammation, to clearly recognize the indications, and to definitely exclude the contra-indications for one of these drugs, he should let them alone, and confine his hit-or-miss prescribing to such agents as boric acid or weak solutions of common salt, whose power for harm is really very slight.

These drugs are applied to the eye for their direct influence on the cornea, iris, or ciliary body. In either case they must be absorbed through the cornea, the lymph streams of which are in close relation with those of the anterior chamber. Any portion of the drug that may be absorbed from other parts of the conjunctival sac is carried into the general circulation without coming in contact with the structures it is intended to influence. Any solution placed in the conjunctival sac is almost immediately diluted by the lacrymal secretion present; only the part with which it first comes in contact receives it of full strength. Now, if the amount of fluid instilled is very large as compared with the amount of tears diluting it, the dilution is of very little importance. But instillations of large amounts of mydriatic solutions are not advisable, because they give the maximum of absorption into the general circulation with the minimum of effect on the eye. And one thing to be constantly guarded against in the use of mydriatics is the excess of constitutional action. Therefore, a mydriatic solution used in the eye, should be instilled so as to come immediately in contact with the cornea while of full strength—that is, it should be placed at the upper margin of the cornea, allowed to flow over the surface of that membrane, and the closure of the lids prevented as long as possible, to allow absorption to occur before the fluid is swept away by the movements of the lids and diluted with the tears.

Instilled in this way, the concentration of the solution when it comes in contact with the corneal tissue, and consequently the amount absorbed, may be ten times as great as if the single drop of the same solution had been placed in some other part of the conjunctival sac. Thus applied, a very small drop of solution suffices to bathe the whole cornea. A dropper giving a small drop is therefore to be chosen. One is readily obtained with a small point that will drop half-minims, or even less. The use of such a dropper allows the employment of stronger solutions than it would otherwise be safe to employ, or a larger number of instillations may be made in the same space of time without producing symptoms of mydriatic poisoning.

It is by attention to such a minute point of technique that one surgeon will at once secure the dilatation of an inflamed iris, or the complete relaxation of the accommodation under homatropine, where another less careful will fail to attain the end sought, or to give relief to his patient. And even where the utmost power of the mydriatic does not need to be exerted, to obtain the effect that is required with the least danger of constitutional symptoms, or with the minimum of constitutional disturbance, is a very important point; for these symptoms, although really not indicating any danger to life, are extremely annoying and alarming to the patient. They occur quite frequently after the use of mydriatic solutions, and such occurrence has much to do with the objection of patients to the use of mydriatics in the diagnosis of ametropia.

The strength of the solution of one of these drugs to be used in the eye varies with the purpose for which it is used. To break up the adhesions in a case of iritis, the stronger mydriatics are to be employed and in strong solution—as atropine sulphate 1 to water 50, or about 10 grains to the fluidounce; daturine sulphate 1 to water 100, or about 5 grains to the fluidounce; duboisine sulphate 1 to water 100, or about 5 grains to the fluidounce; hyoscyamine sulphate or hydrobromide 1 to water 100, or about 5 grains to the fluidounce. The effect of either of these solutions may be somewhat increased by using cocaine with it. But the patient should not be intrusted with the cocaine solution for home use, because the temporary comfort it gives in many cases leads sometimes to dangerous excess. Either of the above solutions is to be used one small drop in the eye at a time at intervals of ten minutes until the dilatation of the pupil is secured, and then at such intervals as may be necessary to maintain such dilatation, and continued three times daily until it can be replaced by a weaker solution.

In making the mydriatic attack on a case of plastic iritis, it is, to a certain extent, simply a question of whether we can get enough of the mydriatic into the eye without getting too much into the general circulation; and to accomplish this we must prevent the solution from making its way into the tear passages, and so being absorbed from the respiratory and digestive tracts, as well as from the conjunctiva. For this purpose it is often recommended to make pressure on the inner canthus. But such pressure is quite ineffective. Even the placing of a little clamp on each canaliculus, as proposed by Dr. Tansley (*Trans. of the Am. Ophthalmological Society*, 1888), does good mainly by the displacement of the puncta that it causes. The most effective means is to so draw on the skin of the lids as to evert the puncta, and hold in contact with them a small pledget of dry absorbent cotton. This will prevent the passage of any fluid from the eye into the lacrymal sac, and permit us to apply the mydriatic vigorously to the cornea.

For paralyzing the accommodation of the eye, solutions of the same drugs of about half the above-mentioned strengths may be instilled three or four times daily.

Probably a single efficient instillation of this kind, or at most two or three, would be sufficient to produce complete paralysis of the accommodation in almost every case, with the eye in anything like normal condition. But frequently the instillation must be intrusted to unskilled hands, and so may produce but a small fraction of its full effect, and in a few cases the active hyperæmia, caused by the mydriatic and involving the anterior segment of the globe, may increase the difficulty of attaining complete ciliary paralysis; so that it may be necessary to continue such applications for some days.

For simply paralyzing the accommodation, however, our most valuable agent is homatropine, commonly used in the form of the hydrobromide. Of this, a two- or three-per-cent. solution, 10 or 15 grains to the fluidounce, should be instilled every five or ten minutes until at least four efficient applications have been made. Used in this way, I have found it a perfectly reliable and efficient paralyzant of the accommodation, even in the presence of high grades of retino-chorioidal irritation and general hyperæmia of the eye. But we have not with this drug the excess, or reserve of power to control the ciliary muscle, that is possessed by the other mydriatics named. Every instillation, or at least a sufficient number of them, must be efficient. The cornea must have the chance of absorbing the solution at nearly its full strength; and for that reason the application of the drug must be intrusted only to skilled hands, usually attended to by the surgeon himself.

To bring about simple dilatation of the pupil our choice of the drug will be determined by whether the dilatation is to be long sustained as a measure of treatment, or only temporary as for purposes of diagnosis. In the former case atropine is to be used, in the latter homatropine or cocaine. Atropine or homatropine should be employed in a solution one tenth the strength of those used for paralyzing the accommodation, or even weaker than this. The atropine to be repeated as often as the pupil contracts again, say once every one, two, or three days; the others, of course, used only the once.

Cocaine, which is of especial value as a dilator of the pupil, is to be used in solutions of the ordinary strength ordinarily employed for producing local anæsthesia of the eye, that is, 2 to 4 per cent. But the instillation must be made at least thirty minutes, often an hour, before the dilatation is desired; the anæsthetic action often having quite passed away before the dilatation of the pupil becomes noticeable, and repeated instillations do not very greatly hasten this dilatation. As a paralyzant of accommodation cocaine has very little power, and by itself is not at all valuable for the purpose. But it can sometimes be advantageously combined with homatropine. Here the frequent repetitions of the instillation, as in the case of iritis, give the advantage of local anæsthesia, greatly lessened resistance on the part of some patients, and prevention of the excessive secretion of tears that follows each instillation of homatropine alone, and by dilution of the solution lessens the intra-ocular effects produced, as well as an apparent hastening of absorption. For this purpose the solution may be made with 2 or 3 per cent. each of cocaine and homatropine.

The instillation of a strong solution of any of the mydriatics causes a pericorneal hyperæmia, which, though not serious, is sometimes alarming to the patient or his friends. This phenomenon I pointed out in a paper on homatropine, published in the *Medical News* for July 18th. It is especially liable to occur from the use of homatropine, because this is more likely to be used in stronger solutions. The combination with cocaine lessens this tendency to a considerable extent.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for July 17th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM— Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	July 11.	1,515,301	957	89	..	..	..	..	..	4	30	27	13	3
Philadelphia, Pa.	July 4.	1,046,964	452	41	..	..	..	..	..	12	5	7	..	3
Brooklyn, N. Y.	July 11.	806,343	572	41	..	..	..	..	..	1	4	12	5	2
Boston, Mass	July 11.	448,477	180	30	..	..	..	..	..	1	..	..	..	1
Baltimore, Md.	July 11.	434,439	284	21	..	..	..	..	..	2	4	3	..	1
San Francisco, Cal.	July 4.	298.997	122	11	..	..	..	..	..	2	..	1	..	....
Cincinnati, Ohio	July 10.	296,908	148	19	..	..	..	..	..	2	1	4	1	....
New Orleans, La.	June 13.	242,039	137	11	..	..	..	..	..	1	..	..	1	....
New Orleans, La.	June 20.	242,039	168	9	..	..	..	..	..	3	..	..	..	1
New Orleans, La.	June 27.	242,039	154	17	..	..	..	..	..	1	..	..	1	1
Pittsburgh, Pa.	June 27.	238,617	95	....	..	..	..	..	..	1	1	1	1	2
Pittsburgh, Pa.	July 4	238,617	141	12	..	..	..	..	..	4	..	2	3	3
Detroit, Mich.	June 27.	205,876	88	....	..	..	..	..	..	1	1	1	..	....
Detroit, Mich.	July 4.	205,876	83	....	..	..	..	..	..	1	..	..	1	....
Louisville, Ky	July 4.	161,129	60	7	..	..	..	..	..	2	..	1	..	....
Rochester, N. Y.	July 4.	133,896	32	7	..	..	..	..	..	..	..	..	..	....
Rochester, N. Y.	July 11.	133,896	25	4	..	..	..	..	..	..	..	..	..	....
Providence, R. I.	July 11.	132,146	32	....	..	..	..	..	..	1	..	1	..	....
Toledo, Ohio	July 10.	81,434	37	....	..	..	..	..	..	..	..	4	..	....
Richmond, Va.	July 11.	81,388	50	6	..	..	..	..	..	..	..	2	..	....
Nashville, Tenn	July 11.	76,168	45	....	..	..	..	..	..	2	..	..	..	....
Fall River, Mass.	July 11.	74,398	61	5	..	..	..	..	..	..	..	..	3	....
Wilmington, Del.	July 11.	61,437	28	....	..	..	..	..	..	..	..	1	..	....
Lynn, Mass.	July 4.	55,727	13	....	..	..	..	..	..	..	..	1	..	....
Portland, Me.	July 11.	36,425	10	....	..	..	..	..	..	..	..	..	1	....
Binghamton, N. Y.	July 11.	35,005	10	3	..	..	..	..	..	..	..	..	..	....
Yonkers, N. Y.	July 4.	32,033	18	1	..	..	..	..	..	..	..	2	..	....
Yonkers, N. Y.	July 11.	32,033	16	1	..	..	..	..	..	..	..	..	..	....
Mobile, Ala.	July 11.	31,076	18	1	..	..	..	..	..	2	..	..	..	....
Galveston, Texas	July 3.	29,084	21	....	..	..	..	..	..	..	1	1	1	....
Auburn, N. Y.	July 11.	25,858	6	1	..	..	..	..	..	..	..	..	..	....
San Diego, Cal.	July 4.	16,159	2	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.	July 4.	11,750	5	....	..	..	..	..	..	1	..	..	..	....

The Presystolic Bruit.—Professor I. Cantalamessa, of Bologna (*Riforma medica*, May 5, 1891), says the presystolic *bruit*, which a Bolognese professor (Brugnoli) was one of the earliest to study (1859), is still by some regarded as pathognomonic of mitral stenosis. Flint, however, reported three cases of aortic insufficiency, in each of which a presystolic *bruit* was distinctly heard as well as the diastolic, but in which the mitral valves were found intact after death. His explanation was that the chordæ tendineæ of the mitral valve vibrated owing to increased tension during the auricular contraction, because the ventricle received blood both from the aorta and from the auricle. Keit thought that the murmur was of aortic origin, due to the great difference of tension between the loaded ventricle and the empty aorta at the moment of beginning of systole. But if so, Cantalamessa maintains, the *bruit* should be heard over the base of the heart, not the apex. De Renzi gave as the cause the meeting of the two currents of blood, one (abnormal) from the aorta, the other (normal) from the auricle. But this and Flint's hypothesis are, in Cantalamessa's opinion, open to the grave objection that if either were true a presystolic *bruit* ought to be very common in aortic insufficiency, which it is not. Nor is it heard in cases of great insufficiency, but only in rare cases, and then strictly localized over the apex. This suggested to Grocco the following theory: The regurgitation varying in amount and direction according to the degree and seat of the aortic lesion, if only one semilunar valve fail to act, the current backward will be oblique, and if directed posteriorly will cause the anterior bicuspid valve to become tense, and vibrate against the stream coming from the auricle, the brief auricular systole aiding. Further, if the backward current does not strike against the valvular cusp, it will still impinge against the ventricular wall, and in certain cases be reflected against the auricular current. After reference to the views of Dickinson, Constantin Paul, and Fenwick and Overend, Cantalamessa proceeds to examine why the first sound is strong in mitral stenosis, and weak, or even absent, in aortic regurgitation. The first sound is normally caused by (1) the heart muscle, (2) the atrio-ventricular valves, (3) the arterial distention. Which of these three will explain by its alteration the phenomena just mentioned? Certainly not the first, for in mitral stenosis the left ventricle is not hypertrophied; nor the last factor—namely, arterial distention—because in the same disease the pulse is small. There remains valvular tension as the cause. The more suddenly the valves pass from extreme relaxation to great tension, the more readily will a sound be produced. Now in aortic insufficiency the refluent strain tends to make tense the valves gradually, so that in this final closure there is no abrupt change, and hence the first sound is weak or absent; but in mitral stenosis, owing to the negative pressure in the left ventricle, the valves are at one time extremely relaxed and then suddenly stretched, which causes a short and sharp first sound. As regards the presystolic *bruit*, Cantalamessa concludes that: (1) The *bruit* heard immediately before the first sound in mitral stenosis, in double mitral disease, and (occasionally) in aortic insufficiency, is really a presystolic *bruit;* (2) it is not pathognomonic of mitral stenosis; (3) its presence warrants the diagnosis of mitral stenosis only when a careful examination of other physical signs allows the exclusion of aortic insufficiency.—*Suppl. to the Brit. Med. Jour.*, June 6, 1891.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

HYPNOTISM.*

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Another year has rolled around, the twenty-first annual meeting of the society has convened, and, by the numerous papers contributed, another volume is added to the society's *Transactions*. The failure or success of the meetings of any medical society depends largely upon the industry and faithfulness of its officers. A sufficient number of scientific papers can usually be secured without much difficulty, but the animating spirit of a collective body, the *esprit de corps*, comes from harmony of action of the executive committee and a determination on their part to make the meetings a success.

The papers, both in number and scientific value, presented to the society at this session surpass those of any previous convention, and for the collection and arrangement of these, together with the interest manifested at the different meetings of the session, we are largely indebted to our executive committee, and especially to the untiring efforts of the chairman of that committee.

Excuse me from giving a formal address which would be in keeping with the honored custom of most of the society's former presidents. It seems to me that I can better occupy the time allotted to me by discussing some subject of interest to the medical profession and to the general public.

No matter how unpopular a medical subject may be, or how much we may desire to leave it alone, if a thorough investigation of it is likely to result in good to the public, either directly or indirectly, we as physicians should not hesitate to make our investigations known.

Credulity, superstition, and at times chicanery and fraud, have been from time immemorial so intimately associated with what is now known as hypnotism that, until of late, but few honest and scientific workers have dared to investigate the subject, and even at the present time only a comparatively small number care to make known the results of their investigations of hypnotism lest the epithet "knave or fool" should be applied to them.

It is too much the custom with scientific men, especially with physicians, to ignore everything that is unorthodox, and regard it as unworthy of thought or investigation. There seems to be a grain of truth for the foundation of every "pathy" or "ism," no matter how much the truth is distorted or perverted in the superstructure, or how absurd and preposterous become the contentions of its fanatic and ignorant followers.

From the earliest times of which ancient history gives us any record, hypnotism, though called by different names, has been recognized. In Egypt it was employed in healing the sick nearly two thousand years before the Christian era. In the middle ages the influence which produced the phenomena was thought by Maxwell to be due to the vital spirit; by Santanelli, of Italy, it was attributed to a radiating atmosphere which, he supposed, was possessed by every material object; and later, in the latter part of the eighteenth and the beginning of the nineteenth centuries, Mesmer termed it the universal fluid, which he afterward called animal magnetism. It is just to Santanelli to say that he recognized the great influence of the imagination.

The Abbé Faria went from India to Paris a short time before the death of Mesmer, and in 1814 and 1815 was the first to show by experiment that the sleep-like state was not due to any force from without the subject, but that it was a purely subjective condition and entirely free from any mysterious influence exerted by the hypnotizer.

Following Faria, Bertrand and Noizet did much to pave the way for the acceptance of hypnotic suggestion, notwithstanding magnetism and mysticism seemed to dominate the minds of most persons then engaged in investigating hypnotism.

During the greater part of the first half of the present century numerous conscientious observers endeavored to solve the problem of hypnotism, or mesmerism, as it was then called, but the general belief in the intimate association of mesmerism and a mysterious power repelled most scientific workers, whose attention at this time was attracted by the rise of the exact natural sciences, and in consequence the phenomena of mesmerism were left for the most part to the unscientific, the ignorant, and often to the unprincipled pretender, who deluded and mystified the people for the sake of gain. Among those who were endeavoring scientifically to investigate the subject at this time may be mentioned Du Potet, Most, Fischer, and Hirschel. In 1841, Dr. Braid, of Manchester, England, began to study the experiments of a Frenchman by the name of La Fontaine. Braid, like Faria, soon found that the phenomena were of a subjective nature and devoid of any mysterious force. He noticed that by carefully and intently fixing the eyes on an object, a condition similar to sleep was induced. He was the first to apply to it the name hypnotism, although a somewhat similar term had been used by Hénin de Cuvillers. Several surgeons are said to have successfully employed hypnotism in surgical operations.

W. B. Carpenter, the physiologist, Laycock, James Simpson, and Mayo, all gave their powerful influence in confirmation of many of the results alleged for hypnotism, but the subject became unpopular. Unprincipled men paraded it in public, using the most glaring deceptions and making for it the most preposterous assertions for the sake of gain. Hypnotism did not receive general recognition in England nor was it extensively investigated, and shortly after the experiments of Braid it was pretty generally ignored or forgotten by most of the scientific English physicians.

Hypnotism had a struggle for the recognition of its existence for nearly forty years from 1841 to 1878. It is true that Grimes performed hypnotic experiments similar to those of Braid, under the name of electro-biology, in the United States shortly after 1841, but he attracted little attention for the subject, except in New Orleans, where he had quite a following for a while.

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* The presidential address delivered before the Colorado State Medical Society, convened in Denver, June 16, 17, and 18, 1891.

The immortal Broca, of Paris, became interested in the experiments performed by Azam, who made known the results of Braid's discoveries in Bordeaux in 1859. Broca discussed the subject before the Académie des sciences. Moll states that hypnotism was employed about this time to perform several painless operations, and that Velpeau, Follin, and Guérineau made experiments. He seems to attribute the stillbirth of hypnotism in surgery at this time to Demarquay and Giraud Teulon, Berend of Berlin, Pincus of Glozan, and Heyfelder of St. Petersburg, who showed the slight value of hypnotism in surgery.

Neither Liébeault's book, published in 1866, notwithstanding its author afterward became the founder of the therapeutics of suggestion, nor the interesting and curious experiments of Czermak on hypnotism in animals, published in 1872, nor the statements of Charles Richet, of Paris (1875), excited much interest in the subject. Not even the towering influence of Charcot's name was sufficient to attract general attention to hypnotism. He began his public class exhibition of it in 1878.

It was only when the school of Charcot, which maintains that for the production of hypnotism a physical rather than a psychical impression is necessary, and the school of Nancy (led by Bernheim), which contends that hypnotism is a condition induced by a psychical process, began to dispute the theory and contentions of each other that a general and intelligent interest was awakened among scientific physicians in the subject of hypnotism. The contest between the schools of Nancy and Charcot began in 1884, but during the last three or four years it has been carried on with greater spirit and enthusiasm, the school of Nancy steadily gaining on that of Charcot. The former has done more than the latter to attract to the study of the subject conscientious and intelligent investigators. To the school of Nancy we are indebted for the present wide-spread interest in the subject of hypnotism, and the influence of its teachings has caused the subject to be studied from three distinct standpoints—the psychological, the therapeutical, and the medico-legal or forensic.

At the present day nearly every country of the civilized world has a number of the brightest minds in the medical profession devoting considerable time to investigating hypnotism. Whether the subject deserves the importance it has received during the last few years remains to be seen, but one thing is certain—the more the subject is scientifically investigated, the less the ignorant and unscrupulous will be inclined to meddle with it.

In England and America the subject has never received the attention its importance seems to deserve, although even in these countries the writers on hypnotism are quite numerous. Unfortunately, however, most of these seem to have been biased. Some have been carried away by enthusiasm at the success of their experiments, while others, failing in inducing hypnosis or in attaining the carrying out of hypnotic suggestion, have condemned the subject entirely, and accused the successful hypnotists of imposition or fraud.

It is rarely that reliable results are obtained by the credulous enthusiast or by the blinded skeptic in any department requiring careful and scientific investigation; and in the study of hypnotism, in which the investigator may be subjected to so much intentional and unintentional fraud and imposition, and where so much chaff is to be winnowed from the wheat, only the painstaking and unbiased hypnotist can hope to deduce conclusions that will stand the test of subsequent investigators.

I am not able at this time to express any very firm convictions regarding the importance of hypnotism in medicine, but, because the subject is now receiving greater attention at the hands of scientific investigators than at any previous time, and because great merits are alleged for it by conscientious physicians who believe that the methods adopted by the school of Nancy have deprived it of most, if not all, of its supposed danger, it seems to me opportune for the society to examine and discuss the subject, and, it may be, to report on it at some subsequent convention.

In this paper I shall not attempt to discuss the importance of hypnotism as an aid to the study of psychology, but will speak of it as a therapeutic agent and as a possible factor in medico-legal medicine.

I do not profess to be an expert in the investigation of hypnotism. I can not refer to a thousand or ten thousand experiments, as may, perhaps, such experimenters as Bernheim, Liébeault, Charcot, Richet, Moll, and others. My experience is limited to about two hundred experiments. In 1882 the Philadelphia County Medical Society appointed a committee, of which I had the honor to be a member, to investigate and report on the subject of hypnotism. The committee consisted of Professor H. C. Wood, Professor Charles K. Mills, Professor Henry Leffmann, Dr. O'Hara, and myself. We began our work by experimenting on some of the lower animals—such as geese, turkeys, chickens, and ducks. We found them to a greater or lesser degree hypnotizable, but none of us were able to hypnotize a guinea-hen. Several of us individually hypnotized both men and women. We all at that time practiced the Charcot method for inducing the hypnotic state, and, as nearly all our subjects were nervous or hysterical, the results were not very satisfactory. The patients seemed to become more nervous and hysterical after being repeatedly hypnotized. About that time considerable reaction against hypnotic experiments, as practiced by Charcot, sprang up in various countries of Europe. The Catholic clergy, of Italy especially, were loud in denouncing hypnotism. It was said to weaken the will and demoralize the subject who submitted to repeated hypnotization. Hypnotism was not considered by us of sufficient importance to pursue our investigations against the clamor raised in Europe against it. Besides, most of us were lukewarm in the work, because we felt the subject was of little importance. The committee never reported.

I at that time began investigating hypnotism as a skeptic, but had not worked long before I was convinced that there was something in it; but I never was prepared to accept the extravagant statements made for it by several conscientious physicians.

After the teachings of the school of Nancy became generally known, and especially after the contest arose between this school and the one of which Charcot is the recognized founder, I began a more careful study of the subject. As hypnotism, as taught by the school of Nancy, seemed so simple and so free from danger, I again began investigating it, with, I must confess, but little faith in many things alleged for it. I have endeavored not to be a disciple or an opponent of hypnotism, but to investigate the subject from an unbiased and scientific point of view.

Inducing Hypnosis.—There are several methods by which hypnotic sleep may be induced. I shall only briefly refer to the principal ones, and describe more in detail the one which I have found attended with least nervous disturbance to the subject hypnotized. I have found it of advantage to my patients to avoid, during the induction of the hypnosis, as well as during the hypnotic state, everything that tends to excite or increase the nervous tension of the patient. Hypnosis may be induced by requesting the patient to fix his eyes intently on some bright object—such as a button held a little to one side of and above the head, a spot on the ceiling, or revolving mirrors—until the eyes tire and close from fatigue, when the hypnotic condition may be completed by passes, from above downward, continued for a few minutes. Professor Charcot employs at times, especially for the hysterical, a sudden flash of an electric light, the noise of a loud-sounding gong, or a stern command to go to sleep. Others use a species of fascination by requesting the subject to look the hypnotist fixedly in the eyes until suggested movements are made or spoken commands performed. Some employ passes, with or without suggestion, and accomplish the same object. A combination of these methods is said to be employed by some hypnotists with advantage. After trying most of the methods referred to, I have abandoned them, except in special cases, for the following:

I first explain to the patient that hypnosis, as I practice it, is nothing more than a condition into which the patient voluntarily places himself by allowing his mind to follow my suggestions to the exclusion of every other thought. That I have not and never shall have any power to put him to sleep without his consent and desire. That, after I get him to sleep, I can make suggestions which he will carry out in his normal state without thought or voluntary effort on his part, and by this means I shall to a great extent be able to keep his mind off himself or his ailments. After the patient has comprehended what I desire, he is placed in a comfortable posture, either sitting or reclining, preferably in the former, when I request him to close his eyes and think of sleep as I suggest the phenomena to him, telling him that the whole matter is in his hands and I have nothing to do with his sleeping except as I suggest it. I endeavor in every case to free the patient's mind of any thought of the mysterious. I now request him to think of sleep, of going to sleep, and repeat: Your eyelids are getting heavy; you begin to feel drowsy; your head is full; you are more inclined to sleep; your eyelids are getting heavier; you are feeling more and more drowsy; your arms begin to feel numb, sleepy, heavy, and powerless; a sleepy sensation is coming over your entire body and legs; your eyelids are now decidedly heavy, and you are going fast to sleep; but it is a quiet, soothing sleep, and you are going to know and remember everything that I say to you; you will not lose consciousness; now you are fast asleep and can not open your eyes. If the patient does not succeed in opening his eyes after I request him to do so, I begin to make the necessary therapeutic suggestions regarding his ailment. In about one third of my efforts to induce sleep I succeed at the first attempt, and in many others success is not attained until several prolonged efforts are made.

To illustrate, I will perform a few experiments before you.

Case I.—I ask C. A. to take a seat in an easy chair before me. I say to him: I want you to think of sleep, to think of nothing but sleep, to think of going to sleep; that your eyelids are heavy [his eyelids close]; your arms are getting dull and heavy; a dull, heavy, sleepy feeling is passing over your body and legs. Your eyelids are getting heavier and heavier, your arms are getting heavier, your legs are getting heavier, you feel yourself gradually going to sleep. Now be careful to think of just what I am suggesting to you, of going to sleep as I suggest. Imagine you feel sensations as I suggest them. A sleepy sensation is passing over you; you feel yourself growing sleepier; your eyelids are now very heavy and you can nót open them. [The patient now tried to open his eyes and failed.] Now I say: You are fast asleep and can not wake up until I tell you; fast asleep, fast asleep. You can not understand anything that I say to any one else. You can understand everything I say to you, but nothing that I say to the society. [I have brought this patient before you, intending to have a dentist draw the roots of a tooth. I have never tried this experiment with any one, and I desire to test him before you to see whether sensation is completely lost. You see that I can prick his hands or his gums without eliciting any response.]

Now I say to him: It is impossible for you to feel any pain. [The dentist was called and asked to extract the tooth, which he did after a prolonged effort, without any apparent suffering on the part of the patient. The bleeding was quite free, and he was told to spit out the blood. This he did as when in a normal condition. He moaned as one undergoing a surgical operation while under the influence of an anæsthetic.] I now tell him he can not have any pain when he wakes up; he will not know that the tooth has been drawn; that when he wakes up he will find on the table half a glass of a delicious liquid (milk of asafœtida); this he will drink and not remember that he drank it, or that any one ever told him to drink it. [He was now awakened by gently blowing in his face and bidding him to awake. He spits blood from his mouth, and expresses surprise that his mouth is bleeding.] I tell him he has been leaning back and perhaps the blood comes from his nose, and ask him if he does not occasionally have nose-bleed, to which he answers in the affirmative. He says he has no pain, and makes no reference to the extracted tooth. He was now told to retire. He rises and starts out of the room, but when he is opposite the table he stops and hesitates for a moment, and then takes the glass and drinks its contents with apparent relish. On asking him if it is good, he answers that it is very nice. [As he left the room immediately afterward, it was impossible to ascertain whether he remembered having drank the liquid, but, so far as could be judged, he did not realize that he was drinking milk of asafœtida, or that his tooth had been drawn.]

Case II.—J. L. now takes the chair. He is a man about forty years of age, and has been under my care at the County Hospital for some months. He is of foreign birth (Swedish), and he hypnotizes quite readily. He has no knowledge of my object in bringing him before the society. I now ask him to get in a comfortable posture and think of sleep, to think of going to sleep, and think of the phenomena of sleep, as I suggest them. [Your eyelids are getting heavy, your head full; a heavy, dull, languid sensation is coming over your arms, body, and legs. Your eyelids are getting very heavy and they close at once. You are now going to sleep; a sleepy sensation is passing all over you; your eyelids are now so heavy you can not open them. (He endeavored to open his eyelids but failed.) You are fast asleep and can not wake until I tell you. Your sleep is going to be refreshing; nothing but good can come from it, and no one shall ever be able to hypnotize you without my permission.] I ask him to put out his tongue. This he does quite readily. Then I say to him, You can not retract it, and he endeavors in vain to get his tongue back into his mouth. When I say to him, You can not keep it out, it readily recedes into his mouth. I say to him he can not keep his left hand down. [He grasps the chair with his hand and endeavors to hold it. The muscles of the arm and hand begin to jerk, and in a few minutes his grasp on the chair is loosened, and now his arm rises against the decided effort to prevent it.] After the arm has been held up for a short time I say to him that it has got to fall, that he must use all his effort to prevent it. [Strong effort is put forth; the arm rises, and immediately the muscles commence to relax and the arm falls in a few seconds.] I have brought an unbroken pack of blank visiting cards. I will ask any one of the audience to select four which are exactly alike as far as I can tell. Now I take one of them and cause the subject to see my picture on it. I ask him if he will know the picture if he sees it again. After looking at it for a few seconds he sees my picture and thinks he will recognize it if he sees it again. I now give the card back to Dr. Parkhill and ask him to arrange them in any order he pleases so that he keeps the right side of the card up, and the side on which the patient saw my picture in front. This is done, and the subject is requested to select the card which has my picture on it. Without a moment's hesitation he points to the right card. I now say to him that when he wakes he will find on a certain table in the room a glass half full of a delicious drink (milk of asafœtida), and under the glass a blank card, and that in five minutes after he will drink the contents of the glass, smacking his lips three times, and say "Oh, how good!" and will write his name on the card and hand it to Dr. Johnson. [Dr. Johnson was somewhere in the room at the time, but was nowhere near the subject or myself.] On being awakened he starts for the door of the room, goes a few steps, turns around, and begins to look for something. He sees the glass on the table [there are several tables in the room]; he takes the glass and empties its contents and smacks his lips two or three times, but says nothing so far as I can hear. Another glass was on the table near by the one that he had emptied. This he seized and drank its contents, which was water. He now stood a few seconds uncertain what to do. Upon examining the table, he found a blank card, and, finding a pencil, he wrote his name on the card. After doing this he began to look around the room. I asked him what he wished. He replied that he wanted to see Dr. Johnson, and wished to know if he was in the room. I told him I thought he was and called to him. He saw the doctor about forty feet away. He started for him, card in hand. On meeting him, he started with the doctor to the door, about seventy-five feet distant. On reaching the door he said to him, "Oh, here is something for you," and handed him the card. I afterward inquired of him if he had drank anything while he was in the room, or if any one had told him to drink anything, or if he had written his name anywhere. To all these questions he gave a positively negative reply.

I always insist, if the patient is a female, that a third party be present and remain throughout the séance, and when the patient is a male, unless I am well acquainted with him and have full confidence in the integrity of his character, I also insist, in every instance, upon a third party being present throughout each séance. Why I do this will be made apparent when I come to speak of the possible dangers and medico-legal relations of hypnotism. During the period of hypnosis I say that nothing but good can arise from the sleep; that he will be less nervous and rested; that no one except his physician shall ever be able to put him to sleep, and he only in the presence of a third party; that he shall never be put to sleep against his will and desire; that he will find it easier to go to sleep each time until his trouble is removed, when he will be more and more disinclined to sleep. To awaken the patient I simply, either with or without gently blowing in the face, bid him awake.

After one or more successful experiments I tell the patient that I am going to induce a deeper sleep, if such a condition is desired. I endeavor never to take advantage of the confidence of my patient, and, after I have assured him that he will be perfectly conscious and remember everything that is said, I do not prevent this without first informing him, and not then if he objects.

For a person to make a successful hypnotist he must be positive in his manner and assertions and capable of inspiring confidence in his patient.

A person is not in a good condition to be hypnotized unless his mind is free from care, worry, and excitement. His body should be in a thoroughly comfortable posture throughout the séance. Patients have come to me in an excited and worried state after I had repeatedly hypnotized them, and I have endeavored long and patiently to hypnotize them, but have signally failed. They would say that they were unable to keep their minds on sleep or my suggestions.

Who are Hypnotizable?—Some persons are apparently incapable of being hypnotized, but one who can not be hypnotized by one person may readily yield to the hypnotic suggestions of another. Several hypnotists of extensive experience assert that from eighty to ninety per cent. of all persons are hypnotizable. In this country the foreign element of our population are more susceptible to hypnotism than the native-born American. When the methods of the school of Nancy are followed in inducing hypnotism, the more nervous and hysterical a person is, the more difficult is he to hypnotize. According to my experience, men are much more susceptible to the hypnotic influence than women. I have found experiments much less satisfactory in women than in men.

Ignorance and education of themselves have little or no influence on the induction of hypnosis, but it is often found almost impossible to hypnotize the busy and overworked professional man, not because he is educated, but because he is unable to concentrate his thoughts on suggestions, to the exclusion of everything else, without which it is impossible to induce hypnosis by the suggestive method. It is sometimes impossible to hypnotize an ignorant, superstitious person, not because of his ignorance, but because his mind is distracted by superstitious fears of hypnotism. The persons who have been trained to implicit and unqualified obedience in obeying commands are the ones who are the most readily hypnotized. Soldiers who have spent years in active service most readily yield to hypnotic suggestion. I have yet to find the first person of this class whom I have tried to hypnotize who has not readily yielded himself to the influence at the first attempt. Sailors are said to be easily hypnotized. This seems reasonable, although I have had but little opportunity to verify the statement. I believe any one who can concentrate his mind on suggested trains of thought relating to the natural phenomena of sleep to the exclusion of every other thought is capable of being hypnotized. It will be seen by this that for many to become hypnotizable is a matter of training the mind to follow suggested thoughts. One person will do it at the first attempt, a second after two or three unsuccessful attempts, a third may not succeed until after daily attempts extending over several weeks, while a fourth may never succeed because the power of mental concentration on one subject suggested by another to the exclusion for the time being of every other thought is wanting.

It is impracticable for me at this reading to attempt to discuss the different degrees of the hypnotic condition. The works of Moll and Felkin on hypnotism are sufficiently full on this point. It is sufficient to state that the hypnosis may vary from the slightest disturbance of the normal condition, in which the subject may be apparently conscious of everything that is said or done, to deep sleep, almost amounting to stupor, in which the person is oblivious to his surroundings for the time being.

It is impossible for me at this time to go into a lengthy discussion of the mental condition of the hypnotic state. Much has been written about it and various theories advanced to explain the phenomena. In my experiments with hypnotism I have limited myself largely to its use for therapeutic purposes, and have only occasionally investigated the psychical condition of the subject under the influence of hypnosis. It seems to me that when a person allows himself to go to sleep by suggestion he voluntarily gives up his will power over his thoughts and actions, and places his mind in a suggestive state to follow, to a greater or less extent, the suggestions made by the hypnotist. One mental state is replaced by another, the ordinary thoughts of the individual are replaced by those suggested by the hypnotist. Suggestions often repeated and strongly impressed upon one during several hypnotic states, apparently, after a time, become so fixed upon the mind of the subject as to form a part of his thoughts, and, to a greater or less extent, influence his actions; hence past hypnotic suggestions are frequently as faithfully carried out as those followed during hypnosis. For one to be hypnotized he must voluntarily place himself in a passive condition and try to be thoughtless—a very difficult thing to do—or voluntarily and involuntarily think of a train of thought suggested by another. When this train of thought consists of the phenomena of sleep as they occur in natural sleep, hypnosis very readily follows. The subject to a greater or less extent places himself in the hands of the hypnotist. After hypnosis is induced he is a passive agent to a great extent in the hands of the person who has induced the hypnotic condition—a state of mind most favorable for mental impressions to be made, because there are no extraneous thoughts to distract the attention. There is, undoubtedly, some expectancy in the induction of hypnosis, but following hypnotic and post-hypnotic suggestions depend upon the mental impression made by the hypnotist upon the mind of the subject during the period of hypnosis. All the good or evil that has or may come from hypnotism is due to the influence of the mind upon the body.

In this connection it may be well to illustrate by well-authenticated cases the influence the mind has upon the body. In 1862 Mr. Woodhouse Braine was called upon to give chloroform to a nervous, hysterical girl for the purpose of having two tumors removed from the scalp. In order to accustom her to breathing through the inhaler before giving her chloroform, he placed it over her face and she at once began to breathe rapidly through it. In half a minute she said: "Oh, I feel it, I feel I am going off." Immediately after she was found to be insensible to pinching and her muscles were flaccid. Both tumors were removed without her having taken a drop of chloroform, and after the operation she declared she had not felt a particle of pain. The doctor very facetiously adds: "To the time she left the hospital she firmly believed in the potency of the anæsthetic which had been administered" (*Influence of the Mind upon the Body*, Tuke). The same author mentions many other instances in which some of the special senses or various organs of the body were influenced to a wonderful degree by mental impression; but I will relate but one more, giving it in his own words:

"In illustration of the influence of fear or apprehension upon the vascular system, I shall first give the following example, the case of a highly intelligent lady well known to myself. Although the emotion had for its object another person, it none the less acted upon her own system:

"One day she was walking past a public institution and observed a child, in whom she was particularly interested, coming out through an iron gate. She saw that he let go the gate after opening it and that it seemed likely to close upon him, and concluded that it would do so with such force as to crush his ankle; however, this did not happen. 'It was impossible,' she says, 'by word or act to be quick enough to meet the supposed emergency; and, in fact, I found I could not move, for such intense pain came on in the ankle corresponding to the one which I thought the boy would have injured, that I could only put my hand on it to lessen its extreme painfulness. I am sure I did not move so as to strain or sprain it. The walk home—the distance of about a quarter of a mile—was very laborious, and, in taking off my stocking, I found a circle around the ankle, as if it had been painted with red-currant juice, with a large spot of the same on the outer part. By morning the whole foot was inflamed, and I was a prisoner to my bed for many days.'"

It would be easy to relate case after case showing the effect of mental impression, or the influence of the mind upon the body, for medical literature is full of them, and from our own experience we each can recall many examples, but a sufficient number has been given for our present purpose.

Of late years the so-called Christian scientists, the faith healers, and the psycho-physicians have sprung up in every corner of the United States, professing wonderful power in healing the sick. What are these but pseudo-hypnotizers? Not hypnotists, for these perform experiments for scientific purposes. When we investigate the methods of procedure of these various wonder performers, we find that they unconsciously and unknowingly hypnotize their patients. It is not necessary for a subject to be asleep, or even have his eyes closed, to derive benefit from hypnotic suggestions. If he can concentrate his mind on the suggestions of the experimenter, influence will follow mental impressions made upon him at the time. He is simply in the lighter stage of hypnotism.

Suppose by training I get a patient so that he can follow my suggestions, and then say to him: "God is good; everything that God has made is good. He has never done anything wrong. He has not caused pain and disease to come into the world. It is not His desire that any one should suffer. All suffering is the result of the perverted imagination due to sin and sinful thoughts. There are no such things as pain and disease. It is all false, and when you believe in such things you doubt the goodness of God and deserve to suffer. All you have to do is to trust God, scout the idea of suffering, and you are well. You do not suffer now; you are entirely free from pain. All your symptoms are gone and you are perfectly well." To all these suggestions a credulous mind will readily assent, and, having his mind riveted upon them to the exclusion of everything else, he passes into a state of hypnosis and is in a condition to accept and follow suggestions of health, freedom from pain, etc. Christian scientists and their allies, faith healers, do good at times in relieving unfortunate persons of perverted mental impressions. Neither Christian science nor hypnotism has ever cured organic disease, but both may lessen or relieve symptoms in some such cases for a time, the degree of relief depending upon whether the mental impression made by disease is capable of being replaced by one made by suggestion. The mental impression made by a skilled and scientific hypnotist is much greater and more enduring than one made by a Christian scientist, from the fact that the former can absolutely control the thoughts of his patients while they are in a condition of hypnosis, while but few of the Christian scientists get their patients sufficiently hypnotized to make deep and permanent mental impressions. There is a class of persons, however, over which the Christian scientist has the advantage above the scientific hypnotist. I refer to the over-credulous and those who wish to be influenced by something that seems to them mysterious and superhuman. I assert again that the therapeutic effects of Christian science, faith healing, and the like, are nothing but results obtained through repeated mental impressions made with or without a light degree of hypnosis.

Diagnosis of the Hypnotic State.—The diagnosis of simulated hypnosis from the real hypnotic condition is as difficult as the diagnosis of feigned from real insanity, and as in the latter it requires a thorough and practical knowledge of insanity, obtained only by a careful study of the insane, so in the former one must be familiar with the hypnotic state as observed in a large number of hypnotic experiments before he can be certain of his diagnosis, and even then he is liable at times to be deceived. The greater number of my experiments have been performed upon persons who were neither nervous nor hysterical and upon whose honesty I could implicitly rely. The relaxed and expressionless condition of the face, the flaccid state of the muscles of the extremities, and the slow, labored, and jerky movements, performed by suggestion, are hard to simulate, and have enabled me to detect simulation in a number of persons. We must remember that a simulator usually overdoes his part.

Therapeutic Value of Hypnotism.—In discussing hypnotism as a therapeutic agent I shall endeavor to be brief, as I have already encroached too much upon your time. This is evidently the most important division of the subject, because upon the value of hypnotism in therapeutics must it stand or fall to the vast majority of physicians. Its value in the study of psychology and its medico-legal importance will interest only those who devote more or less time to these branches of the medical sciences.

In the study of any remedy it is our first duty to learn its properties, and then its influence on the body in health and disease. I believe that the therapeutic properties of hypnotism may be summed up in two words—mental impression. Its value as a therapeutic agent depends upon whether the mental impression made upon a person in a hypnotic condition is capable of removing and taking the place of another mental impression of which the subject is possessed. Physiologically, pain is the conscious recognition of irritation in some portion of the body. We can not conceive of suffering without consciousness, so that all mental and physical distress is the conscious recognition of some disorder which gives rise to the mental impression of suffering. If in hypnosis we could make a mental impression so deep and lasting that it would displace any mental impression of which we might desire to rid our unfortunate patients, we should find in hypnotism the great panacea for nearly all ills, and, when carried to its ultimate conclusion, death would be impossible from many diseases if the hypnotist was at hand, and could only take place when one or more of the vital organs ceased to act from exhaustion. I merely mention this to show the absurdity of it. It seems to me that much injustice has been done hypnotism as a therapeutic agent by the extravagant statements of some apparently conscientious physicians. Whether it has or should have any place in therapeutics we must decide after giving it a fair trial. So many of the results alleged to have been obtained by hypnotism seem to us so exaggerated that we are either led to doubt the honesty of the hypnotist or suspect his judgment has been warped by enthusiasm. It is probable that more definite and reliable conclusions could be reached by the formation of numerous committees composed of suitable persons, who should examine the entire subject of hypnotism, regardless of the statements of the past, and report and discuss the results of their work at some international medical congress, than by individuals attempting to solve the problem for themselves. In all individual investigation, personal equation, a very difficult thing to estimate, must be discarded before results are satisfactory to others. The success of such international work in investigating hypnotism would depend largely upon whether enthusiasts in hypnotism were allowed places on committees. No one who holds apparently extravagant views should be allowed to form any part of such committees.

Anæsthesia.—It is the popular opinion that all persons during the hypnotic condition are insensible to pain. This is a mistake. What proportion of the hypnotizable become insensible to pain has not been determined, but that complete insensibility to irritants does take place in some cases has been verified by all investigators, and you have witnessed it to-day in the experiments performed before you. Dr. Esdaile records two hundred and sixty-one operations performed by himself in India while his patients were insensible to pain from hypnotism. Two hundred of the operations consisted of the removal of tumors varying in size from ten pounds to a hundred and three pounds in weight (*Influence of the Mind upon the Body*, Tuke, p. 63). These operations were mostly performed before the introduction of chloroform and ether for the relief of pain. Many other surgeons report equally successful results with hypnotism as an agent in inducing an anæsthetic state. Only in point of safety has hypnotism any advantages over ether or chloroform in the production of anæsthesia. It is not a general anæsthetic, and it seems to me the excuse for its employment in surgical cases only occasionally occurs.

By suggestions during the stage of hypnosis I have been able to improve digestion, increase the appetite, and relieve constipation. As a rule, tired and nervous feelings can be abolished by hypnotic suggestion. At times I have been able to change slight despondency to hopefulness. Headache, if not too severe, is readily relieved, but so far I have not succeeded in hypnotizing persons while suffering acute pain—such as a severe toothache or the pangs of a trigeminal neuralgia. I have not met with an insane person whom I have succeeded in hypnotizing. I am treating a case of a young man who is tormented with a fear of insecurity, with some success. He realized the absurdity of his feelings, but was unable to throw them off before he was hypnotized two or three times a week for several weeks, and even now the feeling of insecurity returns at times, but they have ceased to influence his actions as they did before trying hypnotism. I have treated a number of cases of stammering with marked success in some. I have hypnotized a few persons who have been addicted to the abuse of alcohol and opium, with only apparent temporary benefit. As to the ultimate success in these cases, when treated by hypnotic suggestion, time alone must tell. When I read of persons having been cured of fixed habits by one or two hypnotic treatments, I can not help doubting the accuracy of such statements. In no case have I approximated success in breaking up any habit except by repeated hypnotic suggestions. If I am correct in believing that the value of hypnotism as a therapeutic agent depends upon the permanency of the mental impression made during hypnosis, it seems reasonable to expect that the impression must be made sufficiently often to become a habit. We do not contract a habit by doing a thing once. Now, when one habit or mental impression is to take the place of another that has existed for years, it seems to me we are expecting too much if we expect to accomplish this at two or three hypnotic séances. Of course, much depends upon the depth of the mental impression, as to whether it will be transient or permanent. Experience has taught me that the impressions made by hypnotic suggestion, if we endeavor to avoid perturbing our patient as much as possible, are not very permanent at first, and are only made so by repeated suggestion, extending over a considerable length of time.

What affections may we hope to relieve or cure by hypnotism? Certainly no one will be so foolhardy as to expect to cure the recognized organic lesions by this method, but in some of these disorders certain symptoms may be relieved by suggestion, and thus aid Nature and Art in removing the lesion and getting rid of its results. There is no doubt that by hypnotic suggestion in many cases despondency may be removed and hope inspired. If suffering is not too great, sleep may be induced, the bowels regulated, and digestion improved by repeating hypnotic suggestion every few days.

The functional troubles for which hypnotism may be tried readily suggest themselves. The great difficulty here is that the nervous and hysterical are not very easy subjects to hypnotize, and the results in these, according to my experience, have not been very satisfactory.

Below I will give brief histories of a few persons treated by hypnotic suggestion:

Case I.—John N., aged about forty, German, laborer, has suffered from epilepsy and almost constant headache for twelve years. About fifteen years ago he was rendered unconscious by exposure to the rays of the sun. Three years later he received severe injuries to the head from blows, the marks of which are still visible on the scalp. Soon after this he was again rendered unconscious by exposure to the sun's rays, and about two weeks subsequently he had his first epileptic convulsion, when headache, which still continued at the time of the first hypnotic experiment on him, began. The epileptic seizures, of which I have witnessed a few, have occurred once or twice a month, and sometimes daily, while he has been taking large doses of sodium bromide. The attacks are all of the *grand mal* type, and he is silly for a few minutes after the lighter fits, and then becomes stupid for an hour or more. After the severer convulsions he passes into a heavy, sleepy condition for some time. His memory is very poor and he is childish in intellect. Headache is dull and heavy in character, and complained of principally in the frontal region. It is almost constantly present, and interferes with sleep unless relieved by large doses of bromide. He was obstinately constipated, and an evacuation of the bowels was rarely obtained without large doses of purgative medicine. He was hypnotized early in February of this year, at the first attempt, and while he was in the hypnotic condition I told him that his headache was gone, his bowels would be opened at 9 a. m. the next day, and that he would, at 3 p. m. of that day (he was hypnotized at 1 p. m.), sleep till 4 p. m. He was awakened free from headache. The other suggestions were carried out at the appointed hours. Three days later his headache had returned and his bowels had not been evacuated since the suggested movement. He was again hypnotized, the suggestions made that his headache would disappear and not return, his bowels would open within five minutes from the time he awoke, and that they would move every morning before 9 a. m. without medicine. Before awakening him I told him he could not remember a word that I had said to him while he was asleep. I awoke him, found him free from headache, and unable to recall anything that I had said to him. I had him watched. He left the room in which he had been hypnotized, went to his own ward, stood by his bed a minute or two, stooped as if about to lie down, turned around, went to the water-closet, and had a movement of the bowels in less than five minutes from the time he had been aroused from the hypnotic state. His bowels moved again the next day about 9 a. m. without medicine. After this he had no more evacuations of the bowels until he was again hypnotized. He remained free from headache for a day or two, when the pain returned, but it was less severe. After hypnotizing him several times more the suggestion in regard to the action of the bowels caused them to move regularly for a week. After hypnotizing him once a week for several weeks his bowels became quite regular without the aid of medicine and without the repetition of the hypnotic suggestion. It required frequently repeated hypnotization to keep him tolerably free from headache, and at times the suggestion would seem to lessen the headache only for a few hours. I was unable to satisfy myself that I lessened or in any way modified his epileptic attacks by hypnotic suggestion. The fits occurred from time to time, notwithstanding he was repeatedly hypnotized, and continued taking forty grains of the sodium bromide thrice daily. I believe his trouble to be chronic pachymeningitis with its resulting influence on the cortex of the brain.

The only influence the hypnotic treatment apparently has had on him has been to break up the habit of chronic constipation, temporarily to lessen headache, and to a slight degree improve his mental condition. He has been hypnotized in all about forty times, and is still under treatment at the county hospital.

Case II.—Charles E., aged forty-two, German, railroad employee, was injured in a boiler explosion three years ago and has been an invalid since. There is considerable wasting of the muscles of the thighs and gluteal regions, more pronounced on the right side than on the left. He suffers considerably with pains in the back and head, dizziness, chronic constipation, and inability to digest anything but the blandest liquid food.

He was readily hypnotized at the first attempt, but it was only after repeatedly hypnotizing him that his symptoms were much modified, and then only for a day or two at a time. An evacuation of the bowels could be obtained at will by suggestion, but the methypnotic influence seemed to lose its effect after a day or two. I could create a desire for food, and he would eat a fair-sized meal of solids without bad results, but this also would continue only for a day or so. He has been hypnotized thirty or forty times with only temporary benefit each time.

Case III.—J. G., aged sixty, American, an old soldier, was injured in the lumbar region of his back, by a fall from his horse in 1863, while he was serving in the regular army. He has been an invalid nearly ever since, and now has symptoms of multiple sclerosis of the cord and brain of the ascending type. He is extremely nervous, sleepless, and constipated. The spine is tender throughout. Arrhythmical tremor is well marked on the slightest effort, but usually absent when he is quiet and at rest. He was hypnotized at the first attempt, and after two or three séances he began to sleep well, the tremor lessened, and the bowels acted at the hypnotist's will, but the influence seemed to be lost after a few days. While he was in a state of hypnosis I told him I would order him a medicine before breakfast every morning, and that this would keep his bowels open, cause him to sleep, and lessen his pain and nervousness. I directed the nurse to give him at 7 a. m. ten grains of sodium chloride each morning. The salt had, and continues to have, the desired effect, although it was begun more than six weeks ago. He now helps in the kitchen at the hospital.

I do not attribute all his improvement to hypnotism, nor to the mental effect (hypnotic influence) caused by taking at a certain time each day a little common salt, but the lessening of the tremor and nervous feelings may be partly due to enforced rest for some weeks after he entered the hospital. It is but just to state, however, that he had been in the hospital for some weeks before hypnotism was tried, and did not show any very marked improvement until after he had been thus treated.

I believe that while this man is suffering from a chronic and incurable lesion of the brain and cord, some of his symptoms, especially nervous feelings and spinal hyperæsthesia, are of a functional nature. The constipation was probably not the direct result of the nervous lesion, but was induced by inactivity and careless habits.

In Case I the patient is very weak mentally; Case II is a decided improvement on Case I, but in Case III the patient is of average intellect for a person in his station in life. They are all uneducated, and were rendered completely anæsthetic during hypnosis.

Case IV.—Fred W., aged twenty-seven, American, butcher, strong and vigorous in appearance, enjoying most excellent health, and of average intellect for persons in his vocation, has been embarrassed since he was eight years of age with stammering speech. He states that up to his eighth year he thinks he talked all right, but, at all events, after an attack of scarlet fever which he had about that time he began to stammer. On making a careful examination, I was unable to find anything of an organic nature that would account for the difficulty in his speech. His trouble seemed to me to be a psychical ataxia of the vocal cords. If his mind could be kept off the word that he was about to say he could speak it readily and distinctly. All the letters of the alphabet he pronounced perfectly if he was not hurried or excited. If he endeavored to speak a word and found difficulty in doing so, I could greatly aid him in his effort by suddenly calling his attention to some other word. He had become so demoralized by reason of the impediment of speech that he could not utter an intelligent sentence in the presence of strangers. His wife told me that he could often talk fairly well when they were alone if no reference was made to his speech. He had contracted the habit of throwing in interjections or phrases before almost every answer which he tried to make in response to questions. This was done at first because he knew if he could keep his mind off his difficulty of speech and could start well, he would be likely to find less trouble in saying what he wanted to. This device might have helped him at first, but it has been carried to such extremes that it is a hindrance at present. He told me that when he endeavored to speak he experienced a choking sensation in the throat, and from there a painful sensation (like he imagines would be caused by the passage of a small cartridge) started and went to the top of his head. When he first consulted me I could scarcely understand a word he attempted to say.

I began treatment with hypnotic suggestion. At the first two attempts I succeeded only in partially hypnotizing him. At the third séance he readily went into a hypnotic state. I told him then in a quite positive manner he would cease to stammer, and would be able to speak slowly and distinctly whatever he wished to say. I began a conversation with him and found that he could talk much better than he could a few minutes before, but still he stammered a great deal. On awakening him, I found he could talk better than before the hypnosis, but not so well as when he was hypnotized. Two days later, his wife having kept him saying difficult words, he had still further improved and felt very much encouraged. I repeated the séances with him about three times a week for four or five weeks. During this time he would improve for a few days and then seem to lose confidence again. By the end of May, nearly two months after I began to hypnotize him, he was able to talk sufficiently well to be understood without difficulty in his business, but in an ordinary conversation in my office he stammered a great deal. I could not feel satisfied that I had done him much good by hypnotic suggestion alone. It seems to me that all his improvement might be accounted for from his practice in saying difficult words and sentences, both at home and in my office. He became an easy subject to hypnotize and always felt quieter and better after a séance, but it seemed impossible to supplant an old mental impression made by nineteen years of stammering with a hypnotic suggestion that was sufficiently strong to accomplish a cure.

Case V.—This was a young man, twenty-eight years of age, born in America, and a carriage trimmer. He is quick and quite bright, and has stammered since his sixth year. He is very nervous and sensitive about his difficulty in speech. Its nature and character seem similar to those of Case IV.

I succeeded in hypnotizing him at the second attempt. While he was under the hypnotic influence he talked quite well. The necessary suggestions were made in a positive manner and he was awakened. He still maintained considerable improvement. He was treated four or five times, when I had to discontinue the séances for a while on account of his business, which kept him away. During the time that I treated him he gained confidence in his ability to learn to speak well, grew less nervous, and could talk very much better than he had been able to do before trying hypnotism. In this case it was exceedingly hard to judge how much of the improvement was due to hypnotism alone.

Case VI.—Miss S., American, about thirty years of age, musician, very bright and intelligent, consulted me about a tremor that affected her whole body, but was most marked in the hands and in the muscles concerned in speech and singing. There seemed to be no tremor except during and for a short time after muscular effort (intention tremor). The tremor had been gradually increasing for about ten years. It began after a period of hard study. It is most noticeable in efforts at singing. Her voice is so unsteady that she can not sustain a high note. At times she can sing fairly well at home, but if she attempts to sing in public, which was formerly her custom, she becomes nervous and loses all control of her voice. The tremor is increased by exercise, by excitement, by having her attention directed to it, and by the presence of strangers. When she is quiet there is no tremor. The speech is exactly like that found in multiple sclerosis of the brain and cord, but, with the exception of the symptoms just noted, there is not another present pointing to this disease. I am inclined to regard her trouble as a functional one. I proposed to her to try hypnotism. She readily consented. In the presence of her sister I succeeded after several failures in hypnotizing her. After the second successful séance she was compelled to leave the city. The improvement then was simply in lessening her nervousness and tremor and inspiring her with hope. There was no such marvelous effect as some have reported from hypnotism. In all cases in which I have succeeded in producing hypnosis I have not failed in relieving such symptoms as headache, nervous feelings, and sleeplessness. I have so far (May 25, 1891) failed in hypnotizing two subjects—one after three attempts and another after about thirty attempts.

Dangers of Hypnotism.—It has been maintained by some—principally, however, by those who have but little or no practical experience with hypnotism—that by repeated hypnotization the subject becomes demoralized, loses self-control, becomes the tool of the hypnotist, and degenerates mentally. From my own experience I can give a positive denial to every one of these accusations when the suggestive method according to that employed at the school of Nancy is employed, provided, however, the necessary precautions as given in Moll's work are used to prevent unpleasant results. Liébeault, Bernheim, Forel, Moll, and others, who have had a very large experience in hypnotism, say they have never seen the slightest ill effects follow its use when employed in the manner above suggested. There is no doubt that the methods usually employed by Charcot and his pupils—such as tiring the subject by gazing at bright objects held in such a position as to strain the eye muscles, the sudden flashing of an electric light on the eyes of a hysterical subject, or stamping the foot, and in a loud and commanding voice bidding the person to go to sleep—may result in great nervous and mental strain, throwing the subject into a hystero-epileptic condition. Convulsions and insanity have followed such unjustifiable exhibitions. After all of my experiments the patients have expressed themselves as feeling refreshed, sometimes a little sleepy, but never nervous or excited. I have never observed mental failure, but in one instance, that of an epileptic, the mind became brighter and memory improved after repeated hypnotization. The greatest dangers to be apprehended from hypnotism are of a medico-legal nature and may be considered under that heading. Unpleasant or exciting suggestions should be avoided during hypnosis if possible. We should never allow ourselves to use suggestions to satisfy a morbid curiosity. The subject should always be told before awakening that nothing but good can come from the hypnosis, and that he will feel better, less nervous, and refreshed on awakening. If any delusion has been suggested during sleep, it should be abolished before he is allowed to awake. The awakening should be done in soothing tones, and in some nervous individuals it is well to prepare the way for it by saying he will awake in a few seconds.

Medico-legal Aspects of Hypnotism.—The medico-legal questions raised in connection with hypnotism are numerous, and some of them of great importance. I had intended to devote considerable space to this part of my subject, but I have already overstepped the proposed limit of my paper, and what remains to be said must be done in a few words. I prefer discussing many of the points that might be raised only when I can throw light upon them from experience gained in further practical investigation of hypnotism. I will reiterate, however, that I believe the chief dangers of hypnotism are of a medico-legal nature, but it seems to me, judging from some of my own experiments on subjects while in a condition of hypnosis, that the professions made by some that innocent persons may be compelled to commit all sorts of crimes against others in carrying out hypnotic and methypnotic suggestions are greatly exaggerated. Suggestions contrary to the subject's will, desire, and moral tone have not been carried out in any of my patients. To some whom I had hypnotized a number of times and who had readily carried out pleasing hypnotic suggestions I suggested while they were hypnotized that on a certain day they would find a powder in a certain place; this they should take and swallow when no one was around, and be unable to remember that such a suggestion had been made to them or that they had taken anything. So far I have not found any one who has carried out this methypnotic suggestion.* If such a suggestion were carried out, and I have no doubt some can be found who will do it, the secret poisoner could accomplish his nefarious and diabolical deeds while he was thousands of miles from his unsuspecting victim. That foul deeds might be committed on persons while they were in a condition of deep hypnosis will be readily admitted by the most incredulous. The physician, to protect his own reputation, should never perform any hypnotic experiments on a female unless a third party is present. I have never hypnotized, or attempted to hypnotize, a woman without having a third party present throughout the entire séance, and never will. To protect the unsuspecting female from the evil designs of a man, be he her family physician or pretended friend, a law should be enacted making it a criminal offense, severely punishable, for any man to hypnotize a woman without having a third party present. In deep hypnosis persons are nearly as helpless as they are when under the anæsthetic influence of chloroform or ether.

There is no doubt that the hypnotist runs a great risk when he indiscriminately hypnotizes men without having a third party at each séance. Criminals might seek to be hypnotized so that they might commit a premeditated crime and profess they remembered nothing after having been hypnotized until they were arrested, thus throwing the suspicion of having suggested the crime on the hypnotist. I have hypnotized one man without having a third party present, after I had told him in former suggestions that no one would ever be able to hypnotize him unless a third party was present. The medico-legal aspects of hypnotism will soon demand careful study and thorough investigation.

I am glad to be able to state that a number of reputable physicians of Denver have offered themselves as subjects for any experiments in hypnotism that I may desire to make. I hope, through the aid of these intelligent and scientific gentlemen, to arrive at something definite and reliable from experiments upon them.

In regard to hypnotism, I believe the following conclusions justifiable:

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* Since writing this I have had this suggestion successfully carried out by one patient.

1. That hypnotism is real, subjective, and disassociated from any mysterious influence formerly supposed to be exerted by the hypnotist over the subject.

2. That its therapeutic value depends upon the mental impressions made during hypnosis, the latter rendering one more impressionable at the time.

3. That much that is accomplished by the aid of hypnotism may be obtained by making repeated impressions without hypnosis.

4. That hypnotism may be attended by certain dangers to the hypnotist, the subject, and the community, but that, so far as the reputation of the hypnotist or the health of the subject is concerned, proper precautions will enable us to prevent any untoward effects, leaving numerous dangers of a medico-legal nature to be guarded against when hypnotism is practiced by unprincipled persons.

5. That whether the therapeutic value of hypnotism is greater than the dangers that can not be prevented from its practice is not determined, and should receive careful attention at the hands of competent investigators, whose minds are not likely to be unduly biased by skepticism or enthusiasm.

6. That no one should be allowed to hypnotize without a license from the State to employ hypnotism.

7. That the practice of hypnotism should be limited to physicians and other scientific investigators.

8. That no one of questionable reputation should be given a license to hypnotize, and any one so licensed should forfeit it on being convicted of any crime.

Original Communications.

EVIDENCE OF ARSENICAL POISONING IN THE SNOOK-HERR WEDDING GUESTS.*

By J. W. IRWIN, M. D.

Early in the morning on the 16th day of April, 1891, I was requested by telephone to call at the house of Dr. ———, where two persons were believed to be dangerously sick. I arrived at the house a little before 8 A. M., and was immediately shown into the presence of two patients, one of whom was lying on a bed and the other on a couch. Both were lying on their sides with their limbs flexed on their abdomens. Their faces wore expressions of anxiety and suffering. The face of one looked bluish-gray and haggard, with the eyes suffused, dull, and heavy, and the vessels in the conjunctivæ red and engorged. The other's face was swollen, with the eyes red and suffused. The cheeks, chin, and neck were covered with a bluish-red-colored eruption. There was marked œdema about the eyes, the lips were red and swollen, and the tongue was red and dry. In the former case respiration was irregular and sighing, pulse 65, small and feeble; and in the latter, respiration was quick and shallow, pulse 120 and irritable. Both patients complained of choking and burning sensations in the throat, with burning in the œsophagus, stomach, and bowels, attended by nausea and vomiting. There was much clearing of the throat. Thirst was intense. Both patients had severe pain in the stomach and bowels and stiffness in the muscles and joints. The pain in the bowels became worse in paroxysms and was attended by copious watery evacuations which gave little or no relief from suffering. In one case there was marked tenderness over the region of the stomach, which the patient was able to point out in well-defined spots; and in the other case the soreness was more diffused and not so severe. Both patients complained of feeling weak and faint, but syncope did not occur in either case. There were feelings of intense nervousness and muscular tremor with twitchings of the limbs in both cases. Headache was quite severe. The urine was diminished in quantity and the act of micturition attended by burning pain. The daily quantity voided in one case during the first two days did not exceed two ounces, and in the other ten ounces. The urine was of a red-orange color and on the sixth day contained a trace of albumin. One patient complained of dyspnœa and flashes of heat, and the other had chilly sensations, while the extremities were bathed in cold, clammy perspiration.

The matter vomited at first was thick and slimy, and now it consisted of thin fluid with mucus, which a few hours later changed in color to greenish-yellow, and a few specks of blood could be seen in it. Even small quantities of fluid taken by the stomach increased the vomiting and were ejected or passed through the bowels with remarkable rapidity. The nurse in attendance in one case assured me that in less than three minutes after her patient had taken two ounces of milk and lime-water by the stomach on the second day of the illness, it was observed to have passed through the bowels. The blandest articles of food taken by the stomach during the first few days of the sickness increased the suffering and usually caused vomiting. The thirst was still intense. Copious watery diarrhœa preceded vomiting in both cases, and one patient had almost a constant desire to empty the bowels, with distress in the rectum. At first the discharges were of the rice-water character, very much like those observed in cases of Asiatic cholera, but toward the end of the first day the color of the dejecta changed to yellow, green, and black, and they contained shreds of intestinal mucous membrane of a brownish-black color, mucus, and blood. Before the end of the first day, or about eighteen hours after the ingestion of the poison, fever set in, which lasted nearly three days. The pulse in both cases was 120 to 130, weak and irritable. During the early part of the day the axillary temperature was 101° F., and in the night it reached 103° F. One patient had mild delirium, some hebetude, nervous jerkings, and tremor of the muscles, and the other felt restless and anxious and suffered from insomnia. On the second day the eruption had extended to the chest and abdomen, and here it occurred in irregular patches which were unattended by burning and itching. The spots were of an irregular size and shape and resembled those observed on the face and neck. The smallest was about an inch and the largest four inches in transverse diameter. This eruption became gradually darker in color, and ten days later it was still visible on the parts of the body covered by the clothing. Desquamation followed the eruption, leaving the skin slightly red and tender.

The condition of the patients continued to be alarming until the third day of their illness, when the fever had subsided and vomiting and purging were lessened. During the three or four days following, a variety of changes took place in these cases. In the early part of the day the patients seemed to improve rapidly; all their symptoms became ameliorated and they were bright and cheerful, but as evening approached they grew worse, were nauseated and depressed, and little or no improvement was observed from that of the previous day. At the end of the first week of their illness both patients had ceased to vomit and the frequent movements of the bowels were checked. Food, such as chicken-broth, beef-tea, milk, and lime-water, was retained when taken in small quantities, but its presence in the stomach caused localized pain and nausea. In one case the abdomen became much distended and painful after the ingestion of about an ounce of milk toast. Nature brought about relief in this case by a free watery discharge from the bowels.

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* Read before the Medico-chirurgical Society of Louisville, June 12, 1891.

On the second day of the illness the swelling of the face in one case had become more marked, with well-defined red rings and swelling about the eyes, and in the other depression encircled the eyes. The face was pale and contracted.

On April 18th another patient was brought to me from the country, who had been subjected to the same cause as those I have mentioned. The history of all the cases I shall give at the same time. The patient was greatly prostrated, which may in part have been caused by his ride of seven miles. He looked haggard and spoke in a feeble tone. His face and neck were swollen and partly covered with an eruption similar in every particular to the eruption observed in another case which I have before described. The eyes were encircled by swelling and red rings, the lips were swollen and inflamed, the mucous lining of the gums, the edges of the tongue, and the cheeks were inflamed and ulcerated. The hands and wrists were swollen. The skin eruption was visible on the chest and abdomen in irregular patches. Neither burning nor itching was complained of. There was slight stupor. The pulse was feeble and irregular and from 60 to 70 beats in a minute. The temperature in the axilla was 96·5° F. He complained of intense thirst and begged for iced water to relieve the burning in his insides. The urine at first was diminished in quantity and the act of voiding it attended by burning pain. Now it had increased to about a pint daily. The bowels were still disturbed; the evacuations were watery and passed involuntarily. There was numbness of the legs and there was stiffness of the joints. There was a burning sensation in the hands, which caused a desire to keep them immersed in cold water. The stomach was irritable, but vomiting was not frequent, and only when he drank too much water did it occur. The condition of the patient remained practically unchanged for two or three days, when a new eruption was observed on the cheeks, on the chin, and around the nose. This eruption at first was slightly papular, and each papule was about a line in transverse diameter at the base, of a bluish-red color, encircled by a red zone and some induration of the skin. The eruptions occurred in groups and the papules were from one to three lines apart. No itching attended this eruption. After two days a slight serous exudation could be observed on the top of the papules, which soon became incrusted with grayish-brown crusts, and these crusts were shed between the seventh and tenth days thereafter, leaving the skin red, smooth, and shining. Desquamation of the face, neck, chest, abdomen, wrists, and palms followed the former eruption. Before the end of the second week from the beginning of the illness, minute abscesses appeared here and there on the face, neck, back, arms, and hands. These little abscesses were very painful and from half to three quarters of an inch in transverse diameter, indurated around the base, purplish in color, and raised very little above the surrounding surface. On the top the skin was of a grayish-white color and shriveled in the center, and when first observed they were found to contain pus.

A few days later this patient was advised to return to his home in a healthful part of the country, and I have not heard the final result of the abscesses, but from his friends I learn that he is well.

On April 19th I saw in consultation another person who had been subjected to the same cause and was suffering in all essential particulars as in the cases I have just described, except that I did not observe any eruption at the time of my visit. Since then I have been informed that the patient has had much swelling of the face, hands, and feet, and that his recovery has been tedious.

These cases have the following history:

On the fifteenth day of April, 1891, the patients, with seventy others, ate of the feast that was served at the now sad though historic Snook-Herr wedding, which occurred at Lyndon, Kentucky. With four or five exceptions, all became sick within a few hours after eating, and presented essentially the same general symptoms. Six of them died at various dates between the second and sixteenth days after the wedding. The groom is numbered with the dead. He was the last to yield up his life to the subtle destroyer. Two or three more of the guests are still lingering near the verge of the grave. There were at the wedding seventy-four persons, sixty-three of whom were poisoned. Only eleven escaped.

The wedding feast was composed of the following articles of food: Chicken salad, stewed mushrooms, beat biscuits, snowflake crackers, cakes, coffee, chocolate, ice cream, ice-cream bricks, and water. The chickens were killed and then cooked in an iron pot two days before the wedding, and the person who caught them assures me that they were healthy, as he had to run fast to catch them. Mr. Herr, the father of the bride, states positively that the chickens were healthy, and that there has not been a case of chicken cholera on his place for years. The salad was made from the white meat of the boiled chickens, and two ladies who assisted in making it certify to the meat being perfectly sound and good. Only six cans of French mushrooms were stewed. The mushrooms were intended to be used in preparing another dish, but, as the cook had eaten some of the chicken meat that was prepared for the salad and had been taken sick, this dish was abandoned. On the day of the wedding the mushrooms were stewed by another cook in tin pans on a stove. The coffee, chocolate, and biscuits were made in the usual way. The ice cream was made in the city by a careful and competent caterer. The chicken salad was served on lettuce leaves on plates, and the mushrooms were served on the same plates beside the salad.

Case I.—This patient ate of the wedding feast on April 15, 1891, between 3 and 4 P. M. The meal consisted of chicken salad, one teaspoonful of stewed mushrooms, beat biscuits, cakes, ice cream, ice-cream brick, coffee, and water. No symptoms worthy of note occurred until the patient was awakened from sleep at midnight, when the first real symptoms were announced by copious watery discharges from the bowels, which were attended by burning pain in the throat and stomach, nausea and vomiting, and a feeling of faintness. These troubles continued during the night, more or less severe, and when seen by me on the following morning at eight o'clock, the patient was very ill.

Case II.—The wedding feast was partaken of by this patient at 3.30 P. M. on the day named. She ate half of one mushroom, snowflake crackers, cake, and ice cream, and tasted ice-cream brick. The first symptom of illness was felt by this patient at five o'clock on the following morning by being awakened from sleep with pain in the stomach and bowels, attended by watery diarrhœa and burning in the rectum. Nausea and vomiting soon came on, with constriction in the throat and great thirst. This patient I saw at 8 A. M. on the same day.

Case III.—On the morning of April 18th this patient was brought to me from the house where the wedding occurred, and from him I learned that between three and four o'clock on the evening of the wedding day he ate heartily of every kind of food that was prepared for the feast. Again he ate of the same food between six and seven o'clock on the evening of the same day. Shortly after the second meal he began to feel badly, and at 8 P. M. he was very ill, after which he became so sick that he did not remember much that occurred during the next two days.

CASE IV.—I saw this patient in consultation on April 19th, and from him I learned that on the evening of the wedding day, between four and five o'clock, he ate of all the food that was prepared for the feast. Soon afterward he drove to the city, a distance of seven miles, and shortly after dark went to visit a friend, at whose house he was taken very sick, about eight o'clock on the evening of the same day. This patient had been vomiting and purging, and the burning thirst had been very great. His abdomen was retracted and his bowels were still quite irritable.

From the cases reported it will be seen that the earlier symptoms of the illness came, as in Case I, at the expiration of nearly eight hours from the ingestion of the wedding feast, and in Case II thirteen hours elapsed before any discomfort was felt. It is worthy of note that both persons had been asleep before any real feelings of sickness were experienced, which may account in part for the symptoms of illness coming on so late.

In Case III the patient ate two meals of the food, the first between three and four and the second between six and seven o'clock on the evening of the wedding day. Three hours after the first, or one hour after the second meal, he became sick. He had not been asleep from the time he ate the food until the symptoms of illness were felt.

In Case IV the illness came on in three hours after the ingestion of the wedding feast. This patient had not been asleep from the time he ate the food until his sickness began.

Cases I and II were the first to come under my observation, and the question of diagnosis occurred to me as being of much importance. The history and symptoms of the patients were carefully considered, and I gave as my opinion that, notwithstanding the lateness of the initial attack from the wedding feast, the cases presented the symptoms of acute arsenical poisoning. Time and further observations helped to strengthen this opinion. The question of prognosis was doubtful, as the patients were dangerously ill.

In considering the question of diagnosis and differential diagnosis I found all authorities to agree that the symptoms of arsenical poisoning were varied and often anomalous. Woodman and Tidy say, in their work on *Forensic Medicine*, at page 139:

> "Cases are recorded where the symptoms have set in immediately. In one half the recorded cases they have commenced within two hours, and in two thirds within five hours. In two cases that are on record no active symptoms occurred before the fourth day. It will, however, generally be found, in cases where the symptoms are delayed for some hours, either that the person went to sleep after taking the poison (for during sleep the animal system is peculiarly inactive), or that the poison was taken with or soon after a meal."

Here are two conditions which apply to the cases I have just described and will readily explain why the symptoms of poisoning were deferred several hours after the ingestion of the poison. The following case from the London *Lancet* of May 14, 1848, will be found recorded in Wormley's *Micro-chemistry of Poisons*, at page 242:

> "A stout, healthy young man took a teaspoonful of arsenic, mistaking it for flour. No marked symptoms of the action of the poison appeared for nearly six hours afterward." *Ibid.*, page 243, a case is mentioned where "half an ounce of arsenic was taken in porter, and the first symptoms of poisoning did not occur for nine hours afterward." In the U. S. D., page 27, the report of a case by Dr. Edward Hartshorne is recorded where "a drachm of arsenic had been taken and the symptoms of poisoning did not appear for sixteen hours."

In Woodman and Tidy's work on *Forensic Medicine*, at page 164, the case of a female is recorded who took half an ounce of arsenic after a meal, and eight hours clapsed before symptoms of poisoning set in. *Ibid.*, page 162: "A female took twelve grains of arsenic, and no intense symptoms set in for three days." *Ibid.*, page 160: "A child took eight grains of arsenic, and no symptoms of poisoning set in for four days."

The citation of the above-given cases will suffice to show that the symptoms of arsenical poisoning sometimes come on late even in cases where large doses have been taken.

As regards the differential diagnosis of acute arsenical poisoning and acute gastric catarrh, the history, the intensity of the symptoms, the skin eruption, and the character of the dejecta excluded the latter.

Von Ziemssen's *Cyclopædia of the Practice of Medicine*, vol. xvii, page 923, says of poisoning by mushrooms:

> "As a rule, the symptoms appear after six or eight hours, seldom earlier, frequently later. Violent colic is the earliest symptom, soon followed by vomiting; later, diarrhœa."

Ibid., page 925:

> "The recognition of the illness described as arising from mushrooms depends chiefly on the history and then on the inspection of the evacuation. If these criteria fail, only a chemical examination can prevent its being mistaken for arsenical poisoning."

Here we have a history of the cases, and have had ample opportunity to inspect the evacuations. One patient ate about a teaspoonful of the mushrooms, and another ate half of a mushroom, and both patients have assured me that the mushrooms were not decayed. Schmiedeberg and Koppe have found that it takes a pound of poisonous mushrooms to produce a grain of the active principle upon which the symptoms of poisoning depend, and that it has taken from one sixteenth to one eighth of a grain of the ptomaine to kill a cat, and that one thirtieth of a grain has caused contraction of the pupils, etc., in a man. In view of such observations, one can not believe that a taste of mushroom would contain enough of the poisonous principle to account for the dangerous symptoms observed in the cases, even were it true that the mushrooms were poisonous and that the symptoms of arsenic and mushroom poisoning are identical in character.

I shall now examine some of the symptoms which have been found to occur most frequently in arsenical and mushroom poisoning:

SYMPTOMS OF BEING POISONED BY ARSENIC.	SYMPTOMS OF BEING POISONED BY MUSHROOMS.
In poisoning by arsenic, the symptoms come on sometimes immediately, one half in two hours, and two thirds within five hours, and some as late as the fourth day after the ingestion of the poison. Sleep causes the symptoms to be delayed, and when the poison is taken with or after a meal the symptoms come on late.	In poisoning by mushrooms, the symptoms appear after six or eight hours, seldom earlier, frequently later.
The first symptoms are violent gastro-enteritis, soon followed by rice-water discharges from the bowels, sometimes mixed with blood, and subsequent vomiting, which matter is sometimes colored green by bile. Thirst is intense, constriction in throat, dryness of mouth and tongue, rarely salivation.	The first symptoms are violent colic, soon followed by vomiting of contents of stomach. Subsequent rice-water discharges from the bowels occur, which rarely contain blood. Thirst is intense, constriction in throat, profuse salivation.
Abdomen retracted and tender under pressure. Pain never entirely absent.	Abdomen distended and relieved by pressure. Pain in paroxysms.
Stools change to yellow-green and tarry-black, mixed with mucus and blood and pieces of intestinal mucous membrane, attended by tenesmus and burning in rectum. Stools have a very fœtid odor.	Stools remain practically unchanged in character. Careful inspection sometimes detects pieces of mushrooms. Stools rarely have a fœtid odor and are rarely black.
Urine is diminished in quantity, burning pain is felt on voiding it, and sometimes it contains albumin or blood.	Urine is lessened in quantity. No pain while voiding it, and it does not contain albumin or blood.
Patient has fever, lasting from one to three or more days. Hebetude, delirium, coma, and convulsions.	Patient has no fever; becomes violently excited, at times maniacal; sometimes coma and convulsions.
There is pain in limbs and stiffness in joints, with tremor and jerking of the limbs.	No pain or stiffness in joints; sometimes tremor of the limbs.
Patients seem at times almost well, but relapses occur. May die at any time within two years. Rarely ever fully regain their health.	Relapses rarely occur. If patient lives past the third day, as a rule, recovery takes place.
Skin eruptions, such as urticaria and eczema, occur, and are followed by desquamation. Sloughing of the skin.	Skin eruptions do not occur. No desquamation.
Ulceration of the lips, gums, mucous membrane of cheeks and throat occur.	No ulcerations occur.
Pupils slightly dilated, and photophobia occurs.	Pupils are contracted and everything is seen dimly, as if in mist.
Respiration is increased and labored, often shallow, again sighing and irregular. Pulse increased in frequency, irritable and feeble.	Pulse and respiration are retarded.
Priapism occurs.	No priapism occurs.
Eyes suffused and conjunctivæ red or inflamed.	Eyes pale and sunken.
Epistaxis.	No epistaxis.
Face, neck, hands, feet, and other parts of the body swollen, also swelling round eyes, with red rings.	No swelling; no red rings around eyes.
Finger and toe nails loosen, suppurate, and fall out; falling of the hair.	These phenomena do not occur.
Aphonia; paralysis of sensation and motion, especially of lower extremities. Involuntary evacuations of bowels.	No aphonia; no such paralysis.
Autopsy.—There is often ulceration of the mouth, œsophagus, and stomach; usually inflammation of the mucous membrane of stomach and intestinal tract of a dark-red color, distributed sometimes in stripes or spots. Sometimes the ulcers penetrate the coats of the stomach and intestines; hæmorrhage, exudation, or infiltration; inflammation and ulceration of the rectum. Ecchymoses beneath the endocardium and pericardium, and fluid blood, fatty heart, liver, spleen, kidneys, and other internal parts.	Autopsy shows acute gastric and intestinal catarrh, and the evidences of inspissation of the blood and of death brought on by cardiac paralysis, as the only more or less constant phenomena.

These are the main symptoms which occur in arsenical and mushroom poisoning. Reliable information from those who helped to serve some of the feast and those who partook of the food is to the effect that there were at least seven persons sick who presented the main symptoms I have described who did not eat mushrooms or anything containing mushrooms at that wedding. This, by exclusion, proved that the mushroom ptomaine was not the cause of the poisoning. The chicken ptomaine, being still unknown to science, as there is no mention of its having been separated, must remain as a matter of conjecture and can prove nothing. But had the chicken ptomaine been discovered recrystallized and free from impurities, the fact that at least four of the victims of the wedding feast, who did not even taste the chicken salad or anything containing it, were sick, would outweigh any amount of ptomaine testimony. The tyrotoxicon ptomaine died in the nascent state, since there were six or eight persons who ate only ice cream and cake and were not sick at all.

Some of the excretions from the poisoned patients were obtained on the morning of the second day, and, by the method of Reinsch, pieces of copper wire and copper foil were boiled in them, and evidences of the presence of arsenic found (the acid and copper were previously tested for arsenic and none found). One piece of copper foil that was boiled in the suspected excrement I handed to Mr. J. A. Flexner, the well-known chemist and druggist of our city, and from him I received the following note:

> LOUISVILLE, *April 21, 1891.*
>
> *Dr. J. W. Irwin, City.*
>
> MY DEAR DOCTOR: I have examined the sublimate from the copper which you brought me, and find it to contain arsenic.
>
> Very respectfully yours, J. A. FLEXNER.

I wish to say in this connection that the excrements were obtained from my patients before any bismuth had been taken.

In the *Louisville Post* of April 22, 1891, I find the following:

> *Dr. Turner Anderson.*
>
> MY DEAR DOCTOR: I beg to report to you that I find arsenic in the urine which was brought to me for analysis last Thursday afternoon, April 16th.
>
> Very respectfully, J. A. FLEXNER.*

Since the foregoing was written, eleven of those who were poisoned by the wedding feast, having secondary symptoms, have come to my notice, and from them I have obtained additional information as to the time that elapsed after the food was eaten until they became sick. The initial symptoms of illness were observed by several of these patients within four hours, and by three within one hour after the food had been eaten. Three have had aphonia. Falling out of the hair has occurred in at least seven cases. Two of the patients have lost toe-nails, and five are still troubled with jerking of the limbs. The secondary symptoms came on between the second and sixth weeks after the wedding. All complain of being feeble and easily fatigued.

Dr. Joseph Hobson, of St. Mathews, who attended nine of the victims of the feast, has kindly sent me reports of their cases. From these I have compiled the following brief summary.

One patient did not eat any kind of salad, and the other eight partook of every kind of food that was served at the wedding. The symptoms of illness in all cases came on in from three to six hours after the ingestion of the wedding feast. Purging preceded vomiting in seven cases, and two patients vomited and purged simultaneously. All complained of dryness of the mouth and throat and intense thirst. Constriction of the throat was observed in all cases. Œdema of the glottis was present in two cases. Two patients had swollen tongues and five had inflammation of the lips and mouth. Three had ulcers of the mucous membrane of the gums and cheeks. The vomited matter in seven cases contained bile and in five instances it was streaked with blood. The stools were watery in all cases at first, but afterward became more consistent, and in six cases contained yellow and green matter mixed with mucus and blood. The urine was suppressed in six cases. The abdomen was retracted in all cases. Five of the patients had aphonia. An erythematous eruption was observed in six cases and one patient had a distinctly papular eruption with serous exudation, which became incrusted. The face, neck, chest, and abdomen were chiefly the seat of these eruptions. Desquamation followed the eruptions on the ninth or tenth day. Hemiplegia of the left side occurred in one case. The patient was still paralyzed in the early part of June. Œdema of the face, of the neck, and around the eyes occurred in six cases. All had burning pain in the throat and stomach and four had cramps in the bowels. Six had nervous tremors, jerking of the muscles and limbs, and pain in the muscles and joints. Three suffered from intense prostration, and felt as though they might die at any moment. The eruption in three cases was attended by itching. Three had mild dilirium. Two had some hebetude. Four had fever; their temperature in the axilla varied from 101° to 104° F. In three cases the temperature was subnormal. Dr. Hobson diagnosticated acute arsenical poisoning. All have recovered except Miss R., who has hemiplegia, and it is believed that she may ultimately regain the use of her limbs. Dr. Mitchell and Dr. Hyndman, of Cincinnati, who attended the late Mr. Snook and his bride (see *Medical News*, June 27, 1891, page 710), say of the eruption: "Beginning on the third and fourth days, respectively, both cases exhibited a decided eczematous eruption over the arms, shoulders, face, and upper portions of the chest. In the case of the lady this continued during her entire convalescence, which began about the sixth or seventh day. In the case of Mr. S. the eruption had more of a papular appearance."

In addition to the cases I have mentioned where blood appeared in the stools, the above-quoted authors say of Mr. Snook: "On the twelfth day he was given a saline cathartic in divided doses. The resulting passages contained a small amount of bright-red blood, evidently from the lower bowel. From this time on the bleeding continued." For an account of the autopsy, etc., in the case of the late Mr. Snook, see the *Medical News* for April 27th, page 710.

ASHEVILLE, N. C., AS A WINTER RESORT.

A REPLY TO SOME NOTES ON SOUTHERN HEALTH RESORTS BY FREDERICK PETERSON, M. D.

By H. LONGSTREET TAYLOR, A. M., M. D.,
ASHEVILLE, N. C.

IN the issue of this Journal for June 13, 1891, Dr. Peterson makes some criticisms of Asheville's winter climate and attractions that can not be passed by in silence. While it is of the greatest importance that the profession should be informed of the advantages or disadvantages of the different health resorts, it is equally as important that they should not be misinformed. While Dr. Peterson states that he intends to make a "few desultory observations," he should have added that they consisted in impressions rather than in facts, at least as far as Asheville is concerned. I do not for a moment wish to convey the impression that Dr. Peterson intentionally misrepresented anything, but I do state that he did not take pains to make accurate observations, or to investigate the weather of the months of January, February, and March of this year. He says of these months in the past winter, which was the most inclement that Asheville, in company with many other places, has known for twenty years, that there was "constant rain and fog."

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* The urine referred to was obtained from one of the lady sufferers attended by Dr. Anderson the day following the wedding.

What are the facts? The record kept at the U. S. Signal Service station is as follows; but one fog was observed in the entire three months:

MONTHS.	Clear days.	Fair days.	Cloudy and rainy days.	Mean temperature.	Mean absolute humidity in grains of moisture per cubic foot of air.	Mean relative humidity.
January..	16	6	9	37·57°	1·798	65·74
February.	9	4	15	45·10°	2·606	69·20
March . . .	12	7	12	41·83°	2·286	70·93

Last year the three months averaged twenty-two and two thirds clear and fair days and seven and a third cloudy and rainy days, and the entire three months had but two days without sunshine. The mean temperature was 47·22°, 48·95°, and 42·65°, respectively. The absolute humidity was 2·525, 2·811, and 2·150, respectively. The mean relative humidity was 63·81, 63·39, and 60·77, respectively.

In 1889 they had, on an average, twenty-five clear and fair days and five cloudy and rainy days, with but three days without sunshine. The mean temperature was 38·5°, 37°, and 45°. The mean absolute humidity was 1·966, 1·894, and 2·120. The mean relative humidity was 66·30, 55·60, and 58·40.

While the temperature is lower than that of other places situated farther south, where the altitude amounts to nothing, yet it is not low enough to keep the visitor within doors, and the sunshine, of which Asheville has such a liberal portion, warms the atmosphere during several hours each day. The patients wintering here are not enervated by the heat and moisture as they are in more southern places, and have more vigor and blood than those who come here from Florida or Georgia in the spring. The atmosphere is as dry as is desirable in the ordinary winter. Last winter was an exception here, as elsewhere.

The ground dries very quickly after a rain. This is due partly to the sandy subsoil and to the excellent natural drainage. When the fact is taken into consideration that the French Broad River falls a thousand feet in passing over the twenty-five miles of its course immediately below Asheville, the last statement can readily be appreciated.

The doctor also states that there are no pavements in the town, but there was half a mile of excellent brick paving laid a year ago. This spring an appropriation of $640,000 was made for improving the city; $500,000 of this is to be expended on pavements and sidewalks. When this is done the mud can never get the upper hand again, even if the bad weather of last winter should be repeated, a thing that of itself is highly improbable. There is already a very complete system of sewers, which are to be made more useful by the expenditure of a large sum of money upon them this summer. The water supply is pure and clear. It is pumped across the mountains, east of the city, from the Swannanoa River.

As to the hotels of Asheville, the doctor says that the Oakland Heights Hotel is the only one at present which can be recommended. The Kenilworth Inn, situated in the same quarter of the town, is also lauded, although still uncompleted. The Battery Park Hotel is the leading hotel both in situation and in reputation. The Swannanoa and Oaks, in the town itself, are good hotels. The Winyah House, known throughout the country as a sanitarium for tubercular patients—ably conducted by Dr. Karl von Ruck, whose scientific reports and observations command the attention of the profession—should not have been passed over in silence. This summer the Belmont, a large hotel several miles from the center of the town, has been opened.

And now, in conclusion, there is a homely proverb which says that the proof of the pudding is in the eating, and since so many tubercular patients, those suffering with nervous prostration and brain tire, and convalescents from acute diseases, have done remarkably well here in the winter months even of this year, and since this has been testified to before medical societies and by numbers of grateful health pilgrims, therefore the very severe criticisms were not deserved. It was a common remark among the laity in the boarding-houses and hotels during the past winter that nearly every one was improving. Dr. Karl von Ruck read a paper at the meeting of the American Medical Association in Washington, giving exact details of twenty-five cases treated with tuberculin during the past winter, in which he gives full credit to the beneficial influences of the climate.

I intend shortly to publish my results with the injections of iodine and gold and inhalations of chlorine gas on tubercular patients, and shall most certainly not overlook that very important element, climate.

Dr. Peterson has very justly called attention to the summer climate of Asheville, but I think he was a little hasty in dealing such a hard blow to the winters, which have heretofore shown such good results that many of the leading authorities of the great cities have for years been sending, and probably will continue to send, their patients here for just those months.

120 HAYWOOD STREET.

CASE OF
RHEUMATIC MULTIPLE NEURITIS,

WITH AUTOPSY.

By HERMON C. GORDINIER, M. D.,
TROY, N. Y.

M. F., aged thirty-one, laborer, temperate in habits, has had slight cough with expectoration for five years, attended with shortness of breath on exertion; with this exception, has been in perfect health until present illness. Father dead; cause not known. Mother alive and in perfect health. No tubercular history in family; denies syphilis; no glandular enlargements; no syphilitic scars detectable; has had gonorrhœa; has had for several years repeated attacks of rheumatism. On Thanksgiving day, November 27, 1888, was taken with what was to all appearances acute articular rheumatism, beginning in both ankles, which were the seat of severe pain on pressure and motion and were much swollen; next came swelling of left elbow and shoulder joints, attended by great pain on motion and pressure; shortly afterward had severe pain in the cardiac region, attended with dyspnœa.

Has emaciated very much since onset of illness; has no desire for food; sweats profusely at night; has chilly sensations and expectorates heavy, thick, yellowish sputa; has had repeated attacks of diarrhœa; complains bitterly of pain in his extremities, and can not sleep on account of pain.

March 1, 1889.—Examination. Patient propped up in chair by means of pillows; is unable to lie recumbent on account of dyspnœa. Decided general emaciation; depressions above and below clavicles; abdomen flat; apex of heart in sixth interspace outside of mammary line; no præcordial bulging. Extremities much wasted; tissues soft and flabby; feet and ankles boggy with soft œdema. Respirations, 30 per minute. Vesiculo-tympanitic percussion general over chest front and back, attended with prolonged expiration, low in pitch. A few mucous râles at bases posteriorly.

Palpation showed apex to be outside of nipple in sixth interspace, and a well-defined presystolic thrill was felt; a systolic murmur with maximum intensity at apex and transmitted into axillæ, with a characteristic presystolic murmur localized at apex, were heard. Marked accentuation of pulmonic second sound; pulse 120, soft and dicrotic. Passes but small quantities of urine, dark in color, containing neither sugar, albumin, nor casts; specific gravity, 1·012; temperature in axillæ, 101°. Two days after this examination patient expectorated a little blood.

Patient can not walk without assistance, his limbs giving out, as he terms it. Marked foot and wrist drop. Can raise arms to right angles with his body, but can not place them on his head or extend his wrists. Grip of hands weak.

Decided tenderness of muscles and of nerve trunks in arms and forearms. Deltoids, biceps, and extensors of forearms, as well as interossi and muscles of ball of thumb, were markedly wasted. The same tenderness of muscles and nerves existed in lower extremities, particularly the vasti, muscles of calf, and peronei group, which are atrophic to a marked degree; anæsthesia in spots on outer aspect of ankles; loss of muscular sense in toes and slight in whole lower extremities; retardation to conduction of pain well marked. Slight anæsthesia in distribution of ulnar nerves; no ataxic movements. Patellar tendon reflexes absent. Bladder and rectum normal. No affection of cranial nerves. Electrical examination made with chloride of silver combined battery. Faradaic current, cylinder drawn fully out, no response in calf or peronei muscles; slight in vasti of both sides. Galvanic current, altered polar reaction. Positive pole gave well-marked sluggish contractions with forty cells, and the same number gave but slight contractions with negative pole. The atrophic muscles in upper extremities present the same altered reactions to faradism and galvanism.

7th.—Examination of sputum negative.

9th.—Patient has been drowsy and stupid for twenty-four hours; passed urine involuntarily; complains bitterly of pain in extremities; pulse rapid and feeble; distinct pericardial friction sound just above apex, double in character and almost annulling the endocardial murmurs.

10th.—Friction at right aortic interspace, rough and creaking in nature; pulse fast and irregular; respiration, 24; temperature, 100°; tenderness on pressure in second, third, and fourth intercostal spaces, also epigastric tenderness; patient very cyanotic; passed his urine naturally.

13th.—Drowsy most of the time; few moist râles, general over chest; pulse rapid and thready; friction distinct; no increased cardiac dullness; apex as before stated; temperature, 101·5°.

16th.—Died at 1 P. M.

17th.—Autopsy at 11 A. M.: Rigor mortis slight; great emaciation; blood unusually fluid; spinal cord appeared normal; transverse sections showed no macroscopic changes. Brain not examined. Dissections of ulnar, musculo-spiral, anterior crural, and sciatic nerves were made, and sections taken for examination under microscope; the nerve sheaths were swollen and greatly congested, being full of blood. Specimens of muscular tissue were taken from the vasti, deltoid, and calf muscles; these muscles appeared pale, flabby, and very soft. Lungs emphysematous. No tubercular deposits, no pleural adhesions, very œdematous; pleural cavities each contained half a pint of clear serum. Heart large, soft, and flabby; weight, twenty ounces. Soft fibrinous exudate over outer anterior surface and at base; an old pericardial adhesion at apex, firm, and separated with resistance and considerable loss of myocardium. Left auricle dilated to size of small lemon, thin-walled; mitral orifice narrowed; would just permit point of index finger; valve flaps thickened near base, with some calcareous deposit; chordæ tendineæ retracted. Left ventricular wall nine lines thick; cavity dilated. Aortic orifice almost occluded by vegetations, and the free edges of semilunar valves united in a ring-like stenosis; atheroma of aorta and coronary arteries. Tricuspid and pulmonic valves normal; right ventricle thin-walled and dilated. Kidneys about normal in size, and presented the normal relation between cortical substance and pyramids; capsules unadherent. Liver two fingerbreadths below costal margin, nutmegy on section; spleen enlarged and full of blood. No tuberculosis of intestines.

Spinal cord and nerves were hardened in Müller's fluid and stained after Weigert's method and in carmine.

Examination of many sections of the cord at different levels in cervical, dorsal, and lumbar regions showed no evident microscopic change; there was the normal number of ganglionic cells in anterior horns; no increase of connective tissue observable; no thickened or enlarged and dilated capillaries; no neuritis or atrophic condition of anterior nerve roots.

Unfortunately, the main branches of the nerves were taken, and not the intra-muscular nerve terminations, in a number of sections of sciatic and musculo-spiral nerves; no parenchymatous change was detectable, but a very marked increase of connective tissue between the individual fibers.

Sections of the anterior crural and ulnar nerves showed not only an interstitial neuritis, but marked parenchymatous degeneration of nerve fibers, such as marked swelling of medullary sheath with an entire absence of axis cylinders, which were replaced by granular matter; others, with segmentation of myeline and beginning granular condition of axis cylinders, being broken up or segmented or entirely replaced by granular matter. Still other fibrils with marked narrowing of sheath and atrophic condition of axis cylinders.

Sections of the vasti, deltoid, and calf muscles were stained with Delafield's hæmatoxylin, after having been hardened and transferred to gelatin. They were very atrophic, pale, and bloodless. Distinct spaces were left between the individual fibers, which spaces were infiltrated with oil globules and small spindle cells; the sarcolemma sheaths were infiltrated with small round cells. Many of the fibers were distinctly narrowed, with their striations indistinct, as if fading away, while in most of the other specimens the fibers had lost all trace of their striation, and presented instead a decidedly granular appearance. In some sections whole bundles of fibers seemed to have the appearance of being longitudinally striated and resembled connective-tissue bundles.

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SYMMETRICAL GANGRENE OF THE EXTREMITIES.

In a paper entitled Notes of Uncommon Cases, Mr. Jonathan Hutchinson describes, in the *British Medical Journal* for July 4th, a remarkable case of symmetrical gangrene of the extremities. The patient, a man, aged thirty-seven, had lost the extreme tips of all his toes and the borders of both his ears, while the ends of all his fingers on each hand were in a condition of mummified gangrene. They were quite black, and looked at a little distance exactly as if he had drawn the finger ends of black kid gloves tightly over the distal third of each digit. A line of demarkation had formed in all, and the gangrenous part, about an inch in length, was in slow process of separation. Mr. Hutchinson remarked that if Raynaud's disease is to be defined as symmetrical gangrene of the extremities, no better example of it could possibly be found than in this instance. He has himself never seen a case in which the gangrene was at the same time so extensive and so symmetrical; yet in some marked features the case differed from the ordinary examples of what is counted as Raynaud's malady. Thus, until the present attack, the patient had never shown any peculiarities as regarded his circulation. Nothing whatever of a paroxysmal character had ever occurred. The man had suffered from an acute illness, which had begun with vague rheumatic symptoms, and ended by confining him to bed for four months, with severe pain in the chest and a state of great exhaustion. From this he had completely recovered. His pulse was of fair strength, and it seemed likely that the parts which had suffered from gangrene would heal, and that no particular enfeeblement of their circulation would result. The case presented a most difficult problem in regard to the cause of the gangrene. That it was arterial, and that in some way the supply of blood had been cut off from the affected parts, no one could doubt. Perhaps the most probable conjecture was that in some way the central organ of the circulation had been for a time extremely enfeebled. Yet of this no evidence remained. The recovery was complete. It was very difficult to suppose that a state of peripheral spasm of the arteries had occurred on one single occasion, persisted for a period long enough to cause such extensive gangrene, and then passed wholly away without the slightest tendency to recurrence. It was not less difficult to imagine the occurrence of peripheral obliterating arteritis which should involve the ears, the nose, and all four extremities.

In the same article Mr. Hutchinson describes another case somewhat similar. The patient was a young woman, twenty-four years of age. She presented a good example of the herediary form of Raynaud's phenomena; her hands were habitually dusky and the fingers very liable to die. The condition had been present from childhood. There was no history of inherited gout, but one of the patient's parents was crippled by chronic rheumatism. The peculiar feature of the case, however, was the formation on the fingers of little "thrombotic warts." These consisted of little elevations or thickenings of epidermis, from the size of pin's heads to that of large shot, and of a deep purple tint. They occurred chiefly on the sides of the fingers, especially on the index. The purple tint was clearly due to venous blood, but it could not be removed by pressure. Mr. Hutchinson says that he has seen similar appearances in a few other cases, but that he is not prepared to give any definite explanation of them.

MINOR PARAGRAPHS.

THE PRODUCTION OF DIABETES MELLITUS BY EXTIRPATION OF THE PANCREAS.

M. E. Hédon, in the *Journal des sociétés scientifiques* for November 4, 1890, mentions von Mering and Minkowski's experiments on this subject, the results of which coincide with his own. In twenty-two experiments he invariably detected sugar in the urine on the very next day after the total extirpation of the pancreas, and the amount of sugar augmented progressively with the number of days after the operation. The average amount of sugar was 50 in 1,000, and in one dog 15 kilogrammes in weight it reached 95 in 1,000. With the sugar in the urine the whole train of symptoms of diabetes mellitus was present, and the animals usually succumbed within a period of from twenty to thirty days after the operation. The author never succeeded in inducing diabetes by injecting paraffin into the canal of Wirsung. To induce diabetes it is necessary to extirpate the pancreas *in toto;* this was confirmed by an experiment in which the vertical portion of the pancreas was extirpated, and no sugar could be detected after most careful urinary analysis. At a second operation only a very small portion was left intact, with the same negative results. At a third operation the last portion was removed, and twenty-three hours after the operation 31 parts of sugar in 1,000 were found in the urine. Though queer, the author says, it is a fact that the small portion of pancreas, which was sclerotic and adherent to the other tissues, apparently did the work of a whole gland.

THE COMPLICATIONS OF MUMPS.

A case of mumps with an unusual complication is reported by Dr. Hellier in the *British Medical Journal* for June 20th. The disease involved the parotid and submaxillary glands of both sides. As the swelling was subsiding, partial paralysis developed on the left side of the face—the side upon which the disease had been most marked. The attack was transitory and ceased in about three weeks. It would not seem strange if paralysis were a common complication of mumps, owing to the intimate relations of the facial nerve and the parotid gland. It is, however, very rare. Fagge and Eustace Smith are among the few authors who make any reference to it. Diseases of the ear complicating or following mumps are common, and orchitis, though it can not be called common, is by no means rare. Reports of both these complications are abundant. The statement is made in the text-books that metastasis to the breast, ovary, vulva, and uterus may occur, and in many instances the reader is led to suppose that such affections are as common as orchitis. As a matter of fact, well-authenticated cases are of extreme rarity. A research into the recent literature of the subject shows a great dearth of instances of such metastatic disease. The writer believes that any practitioner who should carefully record a case of metastatic mastitis, oophoritis, or metritis would furnish material of the greatest interest and value.

THE TREATMENT OF FISSURED NIPPLE.

Dr. Barton Hirst, of Philadelphia, in the *University Medical Magazine* for March, advises the use of an application of equal weights of castor oil and subnitrate of bismuth in the treatment of fissure of the nipple. The nipple and adjacent parts should be thoroughly washed and disinfected before applying the ointment. One of the advantages of this application is that it need not be removed if it becomes expedient for the child to nurse at that breast. The ointment makes a smooth and flexible coating, which not only serves as an efficient protective but tends to reduce the pain and reflex irritation. For the mammary engorgement and pain that so frequently occur when the nipple becomes fissured, he advises the employment of lead water with laudanum, in addition to the ordinary sling-compress. The entire breast should be covered with a cloth wet with the lotion, and the applications should be repeated at short intervals. This line of treatment ordinarily prevents the formation of abscess. It is best to allow the unaffected breast alone to be nursed, and the milk from the affected side can be drawn off with the breast-pump. If it is imperative that the infant shall nurse at the fissured nipple, a glass shield with a rubber tip may be used.

THE TREATMENT OF BROMISM.

Féré some time ago advised intestinal antisepsis in endeavoring to counteract the unpleasant effects of the long-continued use of the bromides. According to the *Bollettino della Poliambulanza di Milano*, he has recently made a second communication on the subject. He employs β-naphthol combined with salicylate of bismuth. Sixty grains of the former and thirty grains of the latter drug are given daily. Thanks to this antisepsis, he is enabled not only to continue the use of the bromides, but to increase the dose up to two hundred and even two hundred and fifty grains a day. The treatment is especially effective in causing the disappearance of the cutaneous manifestations of bromism. Since borax has come into use in the treatment of epilepsy, Féré has noticed that it also often caused unpleasant disturbances of the skin. He has therefore employed the same method of intestinal antisepsis, and found it equally successful. He suggests that further experimentation may show that intestinal antisepsis will permit of the employment of many other drugs which at present are not well borne by the system.

HYDRARGYRUM THYMOLO-ACETICUM.

Dr. Tranjen, in the *Berliner klinische Wochenschrift*, comes forward with yet another remedy for the treatment of phthisis. The case in which the drug was first suggested and employed was that of a young woman with unmistakable tuberculosis of the lung, whose husband had died with brain syphilis. The results were so gratifying that the author adopted the treatment in a number of other cases of phthisis. In all there was a diminution in the number of bacilli, together with great improvement in the general health of the patients. From quite extended observations with this drug the author feels satisfied that it has a contratubercular action, and asks that it be given a fair trial. He dissolves three parts of hydrargyrum thymolo-aceticum in forty parts of liquid paraffin. Of this a Pravaz's syringeful is injected into the muscles, once a week or once in ten days, and after the second or third injection the patient is given full doses of iodide of potassium.

AN EXPLOSION OF COMPRESSED CHLORATE-OF-POTASSIUM TABLETS.

In the June number of the *Therapeutic Gazette* reference is made to an article which appeared in *La Pratique médicale* for May 5th, calling attention to an accident that had happened from carrying chlorate-of-potassium tablets in the pocket. The tablets had been prescribed for a patient who was suffering from ulcerative stomatitis, and he was in the habit of carrying the medicine about with him. One day, as he sat down, a detonation was heard, and before he could remove his clothes he was seriously burned. The tablets, wrapped in a piece of paper, were carried in his pocket together with a penknife, and it is supposed they detonated under the influence of concussion and set fire to his garments.

CEREBRAL TUBERCULOSIS.

According to the *Mercredi médicale*, M. Jean Charcot and M. Souques, from investigations in a number of cases of phthisis where the brain had become secondarily involved, have found that the commonest seat of attack of the tubercular process is the paracentral lobule. The authors are of the opinion that this is due to the peculiar circulatory arrangements in and around this region.

THE VIS MEDICATRIX.

This is the title of a new bi-monthly journal, the journal of the Iowa State Medical Society, edited by Dr. Woods Hutchinson and published in Des Moines. A notable feature of the new journal is its short editorial paragraphs entitled Puffs from the Doctor's Cigar.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 28, 1891:

DISEASES.	Week ending July 21.		Week ending July 28.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	0	0	0	0
Typhoid fever	39	4	30	8
Scarlet fever	135	15	104	21
Cerebro-spinal meningitis	0	4	1	1
Measles	211	11	150	18
Diphtheria	77	31	63	23
Small-pox	1	0	0	0
Varicella	1	0	2	0
Whooping-cough	0	5	1	2
Erysipelas	0	0	0	0
Mumps	0	0	0	0

The Medico-chirurgical College of Philadelphia.—The following changes have been made in the faculty: Dr. G. E. Stubbs, emeritus professor of clinical surgery; Dr. W. S. Stewart, emeritus professor of obstetrics and clinical professor of diseases of women; Dr. H. E. Goodman, honorary professor of surgery, clinical surgery, and orthopædics; Dr. J. M. Anders, professor of the principles and practice of medicine, clinical medicine, and hygiene; Dr. E. E. Montgomery, professor of obstetrics and gynæcology; Dr. Ernest Laplace, professor of surgery, pathology, and clinical surgery; Dr. W. F. Waugh, professor of clinical medicine.

The Philadelphia Polyclinic.—Dr. de Schweinitz has been appointed a professor of ophthalmology.

Bromide of Ethyl as an Anæsthetic.—" Dr. T. Kölliker considers bromide of ethyl a valuable anæsthetic in minor operations. In describing his own method of using this agent, he states that the same precautions should be taken as with chloroform, and that the patient, when it is given, should be recumbent. Complete anæsthesia is produced, as a rule, in about fifty seconds, and lasts from one to three minutes. The author has never observed any disturbing symptoms during its administration, which is followed at once by thorough revival of the patient. The following are mentioned as the operations in which bromide of ethyl is likely to prove very useful as an anæsthetic: Opening of abscess; incisions for cellulitis when not very extensive; tenotomy; application of the thermo-cautery; extraction of sequestra; removal of small tumors; removal by scraping of tuberculous glands, of small tuberculous deposits on bone, and of small patches of lupus."—*British and Colonial Druggist.*

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 19 to July 25, 1891:*

Kneedler, William L., Captain and Assistant Surgeon. Granted leave of absence for one month.

Tilton, Henry R., Major and Surgeon. Granted leave of absence for two months on surgeon's certificate of disability.

Robertson, Reuben L., Captain and Assistant Surgeon. Ordered for duty to Fort Niagara, New York, on the abandonment of Fort Abraham Lincoln, North Dakota.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending July 25, 1891:*

Atlee, L. W., Passed Assistant Surgeon. Ordered to the Independence.

Hope, James Shirley, appointed an assistant surgeon in the navy from July 10, 1891.

Martin, William, Surgeon. Detached from duty at the Marine Rendezvous, San Francisco, Cal., and from special duty in that city, and granted leave until September 15th, and then to be placed on waiting orders.

Crawford, M. H., Passed Assistant Surgeon. Detached from the Independence and ordered to duty at the Marine Rendezvous, San Francisco, Cal., and to special duty at that city.

Field, James G., Assistant Surgeon. Ordered to special duty in the Bureau of Medicine and Surgery.

Hope, James S., Assistant Surgeon. Ordered to the Receiving-ship Franklin.

Morris, Lewis, Assistant Surgeon. Ordered to the Ajax and other monitors, Richmond, Va.

Keeney, James F., Assistant Surgeon. Promoted to Passed Assistant Surgeon.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending July 18, 1891:*

Murray, R. P., Surgeon. To proceed to Gulf Quarantine for temporary duty. July 1, 1891.

Sawtelle, H. W., Surgeon. Relieved from duty at Portland, Me., and ordered to Boston, Mass. July 11, 1891.

Irwin, Fairfax, Surgeon. When relieved at Boston, Mass., to proceed to Buffalo, N. Y., for temporary duty. July 11, 1891.

Carter, H. R., Passed Assistant Surgeon. Ordered to Washington, D. C., for temporary duty. July 2, 1891.

Peckham, C. T., Passed Assistant Surgeon. Granted leave of absence for seven days. June 30, 1891.

Devan, S. C., Passed Assistant Surgeon. When relieved at Buffalo, N. Y., to proceed to Portland, Me., for duty. July 11, 1891.

Brooks, S. D., Passed Assistant Surgeon. Granted leave of absence for thirty days. July 13, 1891.

Kinyoun, J. J., Passed Assistant Surgeon. Granted leave of absence for thirty days. July 14, 1891.

Houghton, E. R., Assistant Surgeon. To proceed to Cleveland, Ohio, for temporary duty. July 8, 1891.

Death.

Groenevelt, J. F., Assistant Surgeon, died of yellow fever, at the Gulf Quarantine Station, June 29, 1891.

Society Meetings for the Coming Week:

Tuesday, *August 4th:* Hampden, Mass., District Medical Society (Springfield).

Answers to Correspondents:

No. 359.—The information may be obtained by writing to the Secretary of War and the Secretary of the Navy.

No. 360.—Ehrlich's "diazo-reaction" is characterized by the production of a deep-red color on the addition of either diazobenzolsulphonic acid or sulphanilic acid to the urine, and is said to occur only in cases of typhoid fever (in the second week), measles, and acute tuberculosis. It is said that Ehrlich does not now rely upon it as a positive sign, but only considers its non-occurrence as proof that neither of the diseases mentioned is present.

Proceedings of Societies.

MEDICO-CHIRURGICAL SOCIETY OF LOUISVILLE.

Meeting of June 12, 1891.

The President, Dr. William Cheatham, in the Chair.

Evidence of Arsenical Poisoning in the Snook-Herr Wedding Guests.—Dr. J. W. Irwin read a paper on this subject. (See page 123.)

Mr. J. A. Flexner, chemist (present by invitation), said that the examination for arsenic under the circumstances had not been a difficult one by any means. He had only this point in the paper to allude to, and he was glad of the opportunity of doing it. Under the circumstances, as expected, the deposit upon the copper was very minute. The portion of copper brought to him had been small, and, after so much purging, vomiting, and medication, he was prepared to find only very small quantities of arsenic, although the copper presented the characteristic appearance of an arsenical deposit. The strip of copper had been half an inch wide and an inch long. He had sublimed a piece in a rather small test-tube, and, while he got a distinct ring, it was not such as could be called crystalline under the glass he had used. He had then resorted to a smaller tube and had obtained a somewhat denser sublimate, and yet not such as he felt satisfied to express an opinion about. He had proceeded to draw out capillary tubes, and in tubes of this size had obtained an exceedingly satisfactory sublimate. He would say that, in so far as all authorities were agreed in reference to the peculiarities of this test, every single point had been completely fulfilled. The temperature used had been that of the ordinary alcohol lamp. On applying the heat, the way in which the sublimate had moved along the tube had been strikingly characteristic. It was known that antimony yielded a sublimate somewhat crystalline, and was the only thing likely to be confounded with arsenic. The talk about sulphur, to his mind, was very far-fetched, to say the least. Sulphur had an affinity for oxygen under heat, and if sulphur had been present the heat would have converted it into sulphurous acid immediately. Under the temperature of the alcohol lamp the sublimation from the copper had been characteristic; the copper had been left clear and bright, and the crystals had been well-marked octaedra under the microscope, which had led him to express the unqualified opinion that the sublimate from the copper which Dr. Irwin had brought him contained arsenic, and, in spite of all said since that, he was of the same opinion still. Some of the sublimates in these tubes, which he had preserved, had been shown to a prominent gentleman, himself a fellow in Johns Hopkins University and for a time an assistant to Professor Remsen, and he had agreed with the speaker.

With reference to the urine he had examined for Dr. Turner Anderson, he had had a similar experience. He had had a small amount of urine to begin with, and had proceeded approximately in the same way. Dr. Anderson had sat at his desk and watched some of the experiments he made, and at the distance of probably two feet had seen the sublimate as plainly as anything of the kind could be seen. Sublimation in the larger tubes had not been satisfactory, but when he had conducted the experiments in the capillary tubes in every instance he had obtained a perfectly satisfactory crystalline sublimate. He had seen no reason for changing his opinion at all, and he thought if the gentlemen who made similar experiments had made them without bias, under the same conditions, they would have had the same experience. One of the gentlemen had told him that he had used a tube of about the size of his finger, and he was not surprised that, under such circumstances, his results had been negative.

Dr. J. B. **Marvin** thought that the essayist had presented an admirable paper, and from his standpoint it looked almost conclusive. He had considered himself to be a little more fortunate than any of the gentlemen connected with the case, in that he had escaped the coroner, and nearly escaped the newspapers. He had seen several of these cases, and several articles of food had been submitted to him for examination. He had declined to make a statement for the coroner or for any one else, taking the ground that no man lived who could say positively that it was or was not arsenical poisoning rather than any other, and that it had passed from the domain of the physician to that of the chemist; that these parties ought to employ chemists to make a complete and exhaustive analysis, and, as he no longer proposed to do chemical work of this kind, he had declined to do it.

In the cases that he had seen there had been no eruption, no ulceration about the mouth, no characteristic changes about the eye. He had seen the cook who had prepared the supper, and others. Further than that, he had had no personal experience with the now celebrated cases.

In regard to the symptomatology, he thought that every one present would admit that it was very risky business to put down symptoms in parallel columns. By so-called differential diagnosis, one could prove anything one wanted to, if one differentiated. Another point was that he thought the doctor had perhaps erred a little in quoting authorities, in taking exceptional cases. As he had listened, he had noticed that in every case he referred to, in which symptoms were told, the patient had taken enormous doses of arsenic—ten grains, fifteen grains, half an ounce, or more. All authorities said that the symptomatology of arsenic was so vague, uncertain, and confusing, that one could never decide in any two cases whether it was arsenic or not. In the now famous case of the Grand Duke of P., where it had been distinctly proved that arsenic had been the cause of death, there had been no characteristic symptoms of arsenical poisoning. He thought if one would look through Reese's *Forensic Medicine*, it would be found that he made a statement that at least half the subjects of arsenical poisoning would die in a few hours, and two thirds would die in six hours. In the majority of cases the symptoms would develop rapidly. He would dislike very much to risk his reputation as a diagnostician on the symptoms of arsenic. He could say, without conceit, as it was known to some of his hearers, that he had had as much personal experience with arsenical poisoning as any one, and he had long since maintained that no man could say from the symptomatology alone that a case was one of poisoning with arsenic. He had not seen anything to change his opinion.

Next, he thought that Reinsch's test, on account of its ease of application, had been the most misleading test in chemistry. It had been the rock that had wrecked more chemists than anything he knew of. The books described it as so delicate that one could detect the fifty thousandth of a grain. It was an extremely delicate test, but right there came the fallacy. No man ought to stop right there. He ventured the assertion that, unless things had changed rapidly in the last five years, he could take hydrochloric acid and could prove it would leave on copper a characteristic sublimate. Sulphur compounds, arsenic, antimony, and a variety of metals left a similar sublimate. Any man could take urine and he would get a deposit. Just there he thought Mr. Flexner might have given us more detail. He differed with him on one point most diametrically. Reese said one could take Reinsch's test and certain sulphur compounds and they would sublime and give a characteristic ring. If the hydrochloric acid was impure it would color the copper when one heated it, and would give acicular crystals. It was extremely important that those crystals should be octaedral, and even then it was best to go a step further and apply a solution test to the crystals. Now, he knew nothing about these tests. He had had no personal experience. He should have liked a little more information from Dr. Irwin in regard to the copper and in regard to the acids, and then as to the questions he had thrown out to Mr. Flexner.

Dr. H. A. **Cottell** said that certainly this Herr-Snook poisoning must become historic. It was the most remarkable example of wholesale poisoning in all the annals of poisoning. Some seventy people went to a wedding, ate of the wedding supper, sixty of them became very sick, six died, one died in about forty-eight hours, the others lingered along six, seven, and fifteen days, and then died. The symptoms in connection with these cases had come on not earlier than in four hours. All of the articles of food eaten at the wedding, the water, the coffee, the tea, had been voted innocent by exclusion. It could be clearly proved by people suffering from the same character of symptoms that they did not eat one or more of these articles. One or two chemists in Cincinnati, six or seven in Louisville, examined portions of the food, examined the urine of several of the patients, examined the vomited matters, examined the matters discharged by the bowels, examined various organs in three of the persons who had died, the liver, the kidneys, and various parts of the alimentary canal, spleen, etc, and arsenic was found by one only, and this in excreta. It was a very remarkable case. He did not think the annals of toxicology contained anything like it. He confessed that he knew less about it to-day than he knew when the investigation began. He knew nothing positively about it. The point that seemed to weigh strongest against arsenic, though a diagnosis could not be made out by symptoms alone, was time. All the authorities in toxicology said the effects came on in from half an hour to an hour, and in some instances in eight or ten minutes. In none of these cases had the symptoms come on within four hours. On the other hand, there were exceptional cases. There was one case on record where the symptoms did not come on for sixteen hours. It would hardly be worth while for him to make the point that it would be extremely remarkable, very unusual, if sixty people poisoned by arsenic should all prove to be exceptional in point of time. In thinking over the symptoms of these patients, when he had first taken charge of several of them, he had thought possibly it was arsenic. Mr. Guthrie had purged himself almost to death and had died of suppression of urine. In Mrs. Guthrie's case there had been constant vomiting and purging up to within forty-eight hours of her death. In the case of Mrs. Gray, she had vomited and purged almost incessantly, and so had Mr. Gray, and the latter had had tenderness over the epigastric region, and also tenderness in the neck when pressure was made in such a way as to involve the œsophagus. There had been no ulcers about the tongue or the lips. But, in thinking over these symptoms, analyzing them, at this date, it struck him that the symptoms of arsenical poisoning were not met with in these cases. There were symptoms that might be attributed to any irritant poison. They were all general. Now, these he had noted: Faintness, a feeling of heat, unusual burning pain in the stomach increased by pressure. In only one case had this been noted, and that several days after the poison was taken.

As to vomited matters streaked with blood, he had seen no blood.

As to purging with tenesmus and great purging with not so much tenesmus, those symptoms had not been prominent. The lower bowel did not seem to be so much involved as the upper bowel.

As to cramps in the legs, he had noticed them in none of the cases.

As to great depression, cold sweat, and frequent pulse, Mr. Guthrie's pulse had been frequent forty-eight hours after taking the poison, when he saw him first. He did not notice a frequent pulse in the other cases. It might be an early effect.

As to symptoms resembling those of cholera morbus, certainly these had in the beginning strongly resembled those of cholera morbus.

Then as to coma, there had been none in any of these cases. Mr. Guthrie had become comatose shortly before he died, but had died from suppression of urine. In the other cases the urine had been rather increased in quantity.

It seemed to him that in as many as sixty cases of arsenical poisoning there ought to be some chronic symptoms, such as falling of the hair, jaundice, inflamed eyes, etc. He thought that jaundice was not a common symptom, but in chronic effects of arsenical poisoning jaundice did appear, and it was very unreasonable to suppose that out of sixty none would have any jaundice, salivation, or some of those things that were wont to follow in the wake of arsenic.

On chemical grounds he had very little to say. He had taken a hand in these cases. He would have declined to have anything to do with it had it not been that he had been associated with the cases in the Guthrie family, and Dr. Anderson had wanted him to have a hand in the case of Mrs. Guthrie. He had not at hand a copy of the post-mortem notes he had taken at the time, but he could tell, he thought, the essential points.

The autopsy had been made by Dr. Rodman, in the presence of Dr. Bailey, Dr. Anderson, Dr. Goodman, Dr. Chenoweth, the coroner, and himself. The *rigor mortis* had been well marked. The autopsy had been made only upon the abdominal organs, about five hours after death. They had been considerably hurried in the autopsy. A very prominent feature in the appearance of this subject had been its exsanguined condition. It had been the most bloodless autopsy he had ever seen. The veins and arteries had been empty. The spleen had been smaller than normal. She had died on the eighth day. Of course they had expected this, after such constant diarrhœa. One could see through the intestinal walls such materials as had been expelled before death took place, dark-greenish material, just such as he had read a description of to-day in von Ziemssen's *Cyclopædia of the Practice of Medicine*, where patients died of cholera. The organs had been removed as rapidly as possible, the stomach tied and removed, and then the intestines had been removed down to the rectum. The liver had been removed, the spleen, and the kidneys. These specimens had been put in 90-per-cent. alcohol and sent to the laboratory. They had looked at these specimens on Friday morning, but nothing had been done, he believed, until the following Monday, when the can had been opened and the stomach and intestines had been examined. On laying open the stomach, he had noticed that on the anterior surface all these organs had shown evidence of inflammatory trouble, and there had also been some peritoneal adhesions, only some of which had seemed to be recent. Also there had been at certain places infiltration of the mucous membrane of the stomach, and at others corrosive evidences. The gastric coats had been destroyed for a very considerable space down through the muscular coat almost to the peritonæum, and then in every place could be found some small ulcers, and very near the cardiac end were found some ulcers, ugly patches, etc. It had occurred to him, since the stomach had been ligated at either extremity, that perhaps there had been some post-mortem digestion of the mucous membrane of the stomach. Fortunately, the ligature had been tied around a part of the gut where a portion of an ulcer was exposed to the alcohol outside, and had been bathed in 90-per-cent. alcohol, and that had shown several distinct ulcers, which had proved they were not post-mortem changes. Well, then, going down the intestines, the lumen of the gut had seemed somewhat increased at the upper part and had looked rough and full of rugæ; the ulcers had been distinct enough to show. Most of them did not go lower than the base of the mucous membrane, but occasionally one had been found dipping down to the peritoneal coat. In the small intestines, sometimes for a foot or more, the lumen had been so contracted that the little finger could not be passed through it. The rugæ did not show ulcers, although it was said that that peculiar condition of the mucous membrane was the condition met with in arsenical poisoning. Going down, the cæcum was reached. He had been anxious to see how it would look, knowing it would probably suffer most of all. There had been found a great number of ulcers—thirty or forty, perhaps fifty, many very small—and in each one of these could be found what looked like greenish mucus, and it had occurred to him, when he saw these ulcers, that he should find mineral poison there. He had picked out a number of them, and had found characteristic deposits on the copper, but they could not get it to respond fully to several tests for arsenic. When submitted to microscopical examination they had proved to be colonies of bacteria. Of course they had found plenty of bismuth.

So far as the chemical investigation upon the kidney, liver, and other parts, post mortem, was concerned, he had not said before the coroner's jury, under oath, that these experiments had been carried out with the utmost care. They had not conducted any experiments at all in their working laboratories. They had gone up into the histological laboratory, where no chemical work was ever done. They had not contented themselves with any chemicals made in America, though the speaker had no doubt there were good chemicals made here. They had used entirely German chemicals, and had taken the utmost care to test every material. Then they had not contented themselves with any one test. They had tested for several of the metals. Every specimen examined had been tested, in the case of arsenic, by the following methods: Reinsch, Marsh, Fleitman, ammonia, and silver, and in some cases by the sulphureted-hydrogen test. In most cases where they had tried the Reinsch with negative results, they had tried other methods, and in every one of those instances the results had been apparently negative. In regard to the liver, they had tested almost the whole of it. They had taken plenty of time and every precaution, and the only trace of arsenic he had found was in one of the specimens of bismuth.

Dr. A. M. Vance asked what had killed the people.

Dr. **Cottell** said that the only theory, granting arsenic did not kill them, that had anything like facts to support it, was the ptomaine theory. Dr. Goodman had carried out a very well conducted theory of ptomaine. He had got some facts, and very good ones, and the speaker would say that it was the best theory he had seen.

Dr. J. A. **Ouchterlony** (by invitation) said that he had been very much interested, not only by the paper, so carefully written and evincing such close observation, which Dr. Irwin had read, but by all the remarks that had been made by the gentlemen taking part in the discussion. The whole affair had excited the interest of the physicians throughout the city and, he was sure, throughout the country, and not the least interesting was that everybody who had had anything to do with it seemed to be nearly as much in the dark now, if not more so, than in the beginning. So far as he had been able to keep up with the progress of the investigation, there seemed to be three theories. One gentleman had attended some cases, and had said that there had been nothing about them indicative of poisoning of any kind. They had been simply cases of cholera morbus. He thought that opinion rather strange, when it was a well-known fact that the different kinds of metallic poisoning were all characterized by acute gastritis, and that, after all, cholera morbus was nothing but irritation and congestion.

Then the three different kinds of poisoning suggested—ptomaine, mushroom, and arsenical poisoning. It was a very curious affair through and through. He believed about sixty-five people had been poisoned, and out of that number six had died, and he thought that only three post-mortem examinations had been made. All seemed to have died at considerable periods of time after the supposed poisoning had taken place. It had occurred to him that, in the celebrated case he had seen reported somewhere, death had taken place on the sixteenth day, and it was a well-established fact that death had been the result of arsenical poisoning, and yet no trace of arsenic had been found on analysis. It did not seem to him that negative results militated very much against the possibility that arsenic might have been the cause of the trouble, and when he thought of the ptomaine theory that had been alluded to by his distinguished friend, Professor Cottell, he remembered several instances recorded by Brouardel and Botmy where ptomaines had been found in the cases of persons proved to have died of arsenical poisoning. There was no doubt at all of the existence of arsenical poisoning in these cases, yet ptomaines had been found.

The clinical phenomena seemed to have been very different in the different cases, but that was what one expected—symptoms varied so much in regard to the quantities taken, according to the emptiness of the stomach, according to the dilution of the poison, according to the temperament, according to the condition of the patient, whether asleep or awake, and according to the preconceived notion of the observer. Bennett had said a long time ago that there were more false facts than theories in medicine. And the further we traveled along the journey of life, the more we realized that facts appeared very different according to the medium through which they were viewed, the point from whence they were viewed, and the preconceived notions of the individuals who observed the facts, and he was satisfied in his own mind that perfectly honest men, well-meaning, competent men, would see things very differently. The time had long gone by with him when he was inclined to quarrel with people because they did not see things as he saw them. He was perfectly satisfied that they differed either because they had some facts that he had not, or because he had some facts that they had not, and, whichever it was, there was no reason for animadversion on either side. He must say that, looking at the matter from the standpoint of an outsider, he was unable to divest his mind of the idea that certainly the cases that Dr. Irwin had reported must have been cases of arsenical poisoning. It was simply an opinion. Making all allowance for its unreliability, the symptomatology was very striking, and he must say he did not see anything to conflict with that view, but, on the other hand, everything to bear it out. The whole affair was shrouded in mystery. Possibly one of these days it would be solved, but until then there would always be more or less doubt and more or less uncertainty about it. All we could say was that we had to judge by the facts before us. All the perfectly reported and recorded facts that he had seen or knew anything about were those furnished by Dr. Irwin, and he did not think any one who had listened to that report could help being impressed with the fact that these cases looked like arsenical poisoning. In addition to that, he had got Mr. Flexner's report that arsenic had been found in the sublimate from the copper given him and in the secretions from Dr. Anderson's patient; also the post-mortem appearances given by Dr. Cottell, and from what he had said relating to the condition of the mucous membrane in the stomach of Mrs. Guthrie. Certainly those appearances must have been produced by some corrosive poison. Neither mushrooms nor ptomaines would produce such destructive lesions in the mucous membrane of the œsophagus, stomach, and intestinal tract. How could we believe that a vegetable poison not corrosive in its character could produce such destructive effects? These poisons killed as other vegetable poisons did—chiefly by their paralyzing effects upon the nervous system.

So far as the paper of the evening was concerned, which he had followed very closely, it seemed to him that the only conclusion he could reach was that they had been cases of arsenical poisoning. He thought, perhaps, Dr. Irwin had been a little autocratic in the matter of the diagnosis, but, after all, that was but natural, and he did not know but he would have done just about the same himself.

Dr. T. H. **Stucky** wished to speak from a clinical standpoint. He had had two of these poisoning cases. There had been no eruption or any ulceration about the lips or gums. There simply had been symptoms of a great intestinal irritation, accompanied by fever for three or four days, followed by recovery. There had been a complete absence of any of the peculiar symptoms spoken of in Dr. Irwin's paper. He simply said this because one of his patients had stated that he had eaten very heartily of all the food, and had been taken sick about eight hours after the feast.

Mr. J. A. **Flexner** said, in reply to Dr. Marvin, that when he had spoken of the sublimate as crystals of arsenic he had meant octaedral crystals, as that metal crystallized only in octaedral crystals, or decaedral. So far as antimony was concerned, it was a well-known fact that the sublimate was never crystalline unless the temperature was exceedingly high, about 1900° F., while arsenic sublimated at a much lower temperature, and antimony could not be driven up and down the tube as arsenic could. As regarded the purity of the acids Dr. Irwin had used, he knew nothing of them whatever. With reference to the materials employed in the test for Dr. Anderson, he was perfectly willing to stand by them. Any man who had had any experience with examinations for arsenic, and he had had a great deal, knew that the materials were always examined first. An element of doubt that very frequently occurred was that possibly free chlorine might be found in the hydrochloric acid. It took away the bright color of the copper and was apt to mislead, if one depended simply upon the tarnishing of the copper. He thought that Dr. Marvin overrated the importance of his statements with reference to the purity of the chemicals; but, if it was true, it was only so when inexperienced men had such matters in hand. But where the analyst was satisfied in the first place with his copper, and in the second of his hydrochloric acid, and did not work, where small amounts of arsenic were present, with too much copper, and where the copper was properly treated afterward, where the sublimation was carried on in proper tubes, and where the temperature was not too high, Reinsch's method was one of the most useful of all the tests for arsenic. It had the advantage of extricating arsenic from more complex mixtures than any other method, and he reiterated that the sublimate he had obtained from Dr. Irwin's copper corresponded with the description, in every possible way, the authorities gave for arsenic.

Dr. IRWIN said that he had been very much interested in the discussion. He wished to say in reply to Dr. Marvin that the persons whose cases he had described in his paper were all living and could substantiate all that he had said. He had witnesses to show that the eruptions had been present. As to the enormous doses of arsenic, it was rarely that they were ever retained in the stomach even for a short time, as they were generally speedily ejected. The authorities said that when the patient went to sleep soon after taking arsenic it took a longer time for the symptoms of poisoning to be felt. Hence the delay in some of the cases. In making the diagnosis, he had not depended on symptoms alone. He had taken the history; he had then made tests according to Reinsch's method; he had found a coating on copper that looked to him very much like a deposit showing the presence of arsenic, which, when taken in connection with the history and symptoms presented, he had regarded as pretty conclusive. He could not consider the symptoms of the patients under his observation as those of any other poison known to him than arsenic. The symptoms he had seen had been those of arsenic and nothing else. This view had been confirmed by Mr. Flexner's test. Dr. Cottell had said the mortality from arsenical poisoning should have been very much larger. In Taylor's treatise on *Poisons* we had a report of two hundred persons who had been poisoned by arsenic. Out of this number seventeen had died. Twelve had died from acute symptoms, and five from secondary results. In this instance the rate of mortality corresponded with that of the cases under discussion.

Some one had said that there was no paralysis. Miss R. was paralyzed and had lost the power of speech. She was not expected to recover. Another patient had suffered from paralysis of sensation in the legs—so much so that the application of a coarse flesh-brush was not felt by her.

So far as jaundice was concerned, several cases had been mentioned. Mrs. L. had had very considerable jaundice, but that had come on since he had written his paper. In this connection he wished to read a letter received from Mrs. L. on yesterday. The letter was dated June 11, 1891, in which she said: "Positively I did not taste one particle of the chicken salad on the day of the wedding." He had proof in his possession, some of which was taken before the coroner, that there were at least four persons sick who had partaken of the feast and who had not tasted of the chicken salad or anything pertaining to it at that wedding. He had in his possession more proof that seven persons had not eaten of the mushrooms, or anything pertaining to mushrooms, and had been poisoned. He had proof of others who had not eaten anything but ice cream and they had not been sick at all. The letter further said: "I am still very weak, any exertion tiring me. My hair is falling out by the handful. Mrs. C. H. W., my sister, is losing her hair. Mrs. H. and her sister are also losing their hair. Mrs. J. L. H.'s nails are loosening and suppurating around the quicks, and the discharge is very offensive. Mr. A. G. H. has lost some of his toe-nails."

Were not these symptoms those of arsenical poisoning and nothing else? And to these statements he had others to add. He had witnesses who had seen the red rings around the eyes, the various eruptions, and the color of the evacuations. He had witnesses who could corroborate everything he had stated in his paper.

He did not care to consider the rest of the discussion just now, as the time had expired and he expected to continue this report at another time.

Book Notices.

Fever: its Pathology and Treatment by Antipyretics. By HOBART AMORY HARE, M. D., B. Sc., Clinical Professor of Diseases of Children and Demonstrator of Therapeutics in the University of Pennsylvania, Physician to St. Agnes's Hospital and to the Dispensary of the Children's Hospital, Laureate of the Royal Academy of Medicine in Belgium and the Medical Society of London, etc. Philadelphia and London: F. A. Davis, 1891.

THIS is an essay presented to the Boylston Prize Committee in 1890 under the title of The Uses and Values of Antipyretics, and from it it appears that we have no substance which is distinctly and solely capable of exercising an inhibitory power over the development of heat in the body. Many antipyretics have been found to so depress the heart or the respiration as to prevent their use, while others again are deleterious by reason of the secondary lesions produced by them in the tissues of the body. Extensive bibliographical research, combined with much clinical and physiological experimentation, warrant our author in concluding that marked depression and adynamia contraindicate the use of antipyretic drugs which, under other circumstances, are of great remedial value, not only in the reduction of fever, but also in alleviating pain. Numerous charts, amply demonstrating the effect of these drugs upon the heart, the respiration, febrile conditions, etc., lend a great value to a book every page of which contains much of interest to the physician.

Historical Sketch of the University of Maryland School of Medicine (1807–1890). By EUGENE FAUNTLEROY CORDELL, M. D. (Class of 1868). Baltimore: Press of Isaac Friedenwald, 1891.

THIS volume will undoubtedly prove very welcome to the many graduates of the school of medicine of which it treats. The author calls it a sketch, but it is really a very complete history. It is embellished with numerous portraits of past and present professors in the Baltimore school. We have found much of interest in its pages. The work has evidently been a labor of love to the author. He has, to our mind, fully realized the motto upon the title-page.

Oftalmología. Por el Dr. ENRIQUE LOPEZ, Oculista del hospital Mercedes. Habana: M. Ricoy, 1890. Pp. 282.

THE author has carefully compiled and as carefully analyzed the statistics of a thousand eye cases found among the members of the four races—white, Chinese, negro, and mulatto—peopling Cuba, and concludes that the proportion of the various diseases of the eye remains essentially the same in that country as that found by Galezowski in France or Rydel in Poland, the principal difference lying in the greater number of persons affected with amblyopia and muscular difficulties in Cuba than elsewhere. Considerations of sex, of occupation, of age, and of diatheses lend interest to the work, and its value is still further enhanced by chapters on physiology and treatment.

BOOKS, ETC., RECEIVED.

Lectures on Tumors from a Clinical Standpoint. By John B. Hamilton, M. D., LL. D., Professor of Principles of Surgery and Clinical Surgery, Rush Medical College, Chicago, and in the Chicago Polyclinic. For the Use of Students. Detroit: George S. Davis, 1891. Pp. 138. [Price, 25 cents.] [*The Physician's Leisure Library.*]

The Pathology, Diagnosis, and Treatment of Intracranial Growths. By Philip Coombs Knapp, A. M., M. D., Clinical Instructor in Diseases of the Nervous System, Harvard Medical School, etc. Boston: Rockwell & Churchill, 1891. Pp. viii–165. [Fiske Fund Prize Dissertation No. XLI.]

Practical Intestinal Surgery. By Fred. B. Robinson, B. S., M. D., Professor of Anatomy and Clinical Surgery, Toledo Medical College, Toledo, Ohio. Vol. I. Detroit: George S. Davis, 1891. Pp. xii–172. [Price, 25 cents.] [The *Physician's Leisure Library.*]

Atlas of Clinical Medicine. By Byrom Bramwell, M. D., F. R. C. P. Edin., F. R. S. Edin., Assistant Physician to the Edinburgh Royal Infirmary. Vol. I. Part 1. Edinburgh: T. & A. Constable, 1891. Pp. 48.

Amputation at the Hip Joint. How should it be performed? By Emory Lanphear, M. A., M. D., Kansas City, Mo. [Reprinted from the *University Medical Magazine.*]

A Vegetable Plate; also a New Technique in Intestinal Anastomosis. By Robert H. M. Dawbarn, M. D. (Read, in part, before the Section in Surgery of the New York Academy of Medicine.)

Vacation Time, with Hints on Summer Living. By H. S. Drayton, M. D. New York: Fowler & Wells Company, 1891. Pp. 3 to 84.

Some of the Therapeutic Relations of the Nervous System. (Delivered in the Philadelphia Polyclinic Evening Lecture Course, February 24, 1891.) By Solomon Solis-Cohen, M. D. [Reprinted from the *Therapeutic Gazette.*]

Two Cases illustrating the Therapeutic Uses of the Nitrites. By Solomon Solis-Cohen, M. D. [Reprinted from the *Philadelphia Hospital Reports.*]

The Indiscriminate Use of Opiates in the Pelvic Diseases of Women. By H. P. C. Wilson, M. D., Baltimore. [Reprinted from the *Transactions of the Southern Surgical and Gynæcological Association.*]

Hygienic Conditions of Passenger Cars. By Granville P. Conn, M. D., Concord, N. H. [Reprinted from the *Weekly Medical Review.*]

The Steps of the Cæsarean Section: the Do's and the Don'ts. By Howard A. Kelly, M. D., Baltimore. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children.*]

Cancer of the Cervix Uteri in the Negress; with Pyophysometra. By Howard A. Kelly, M. D., Baltimore. [Reprinted from the *Transactions of the Southern Surgical and Gynæcological Association.*]

The Social and Medical Aspects of Insanity. By John Punton, M. D., Kansas City, Mo. (Read before the Southwest Missouri Medical Society, May 11, 1891.)

Fifteenth Annual Report of the Managers and Officers of the State Asylum for the Insane at Morristown, N. J. For the Year ending October 31, 1890.

Annual Report of the Board of Health of the Health Department of the City of New York. For the Year ending December 31, 1890.

Miscellany.

The Disease known as "Surra" affecting Horses and Mules in India.—The June number of the *Indian Medical Gazette* contains the following article, by Dr. George Ranking, Surgeon-Major, Fifth Bengal Cavalry:

The importance of the investigation which forms the subject of the present paper is sufficiently evidenced by the statistics of "surra" in this regiment alone, though these figures only show a very small proportion of the cases of "surra" which occur yearly in India and Burmah, causing a loss to Government which may fairly be termed enormous.

In 1889 no less than fifteen horses and thirteen mules of this regiment died of "surra," representing a loss of nearly eight thousand rupees to the (*Chanda*) fund. In 1890 the loss was five thousand rupees owing to the death of eleven horses and seven mules.

Losses like this demand an investigation into their cause, and it was in the hope of being able to identify the cause and obtain indications for rational treatment that the research was undertaken. I must premise that, in calling the disease which I have been investigating "surra," I have relied upon the diagnosis of the veterinary surgeons under whose treatment the animals were at the time I undertook the research. They were agreed that the disease was true "surra," and this diagnosis was borne out by its fatality.

Mortality from "Surra."—"Surra" has hitherto proved invariably fatal, not being amenable to any treatment adopted up to the present time.

Symptoms of "Surra."—Its symptoms may be briefly described as a progressive anæmia with lassitude, emaciation, conjunctival petechiæ, abundant urine, and ultimately death from sheer exhaustion. The urine in most cases is albuminous, and in one fatal case which came under my own experience, contained a pigment which, I have no doubt, was urohæmato-porphyrin, though I was unfortunately not able to examine the urine by the spectroscope. I do not, however, propose in the present note to go into any detail of the abnormal appearances observed, my object being simply to give a brief account of the research instituted, with a broad statement of the results arrived at, reserving the full account of the various points noticed with the deductions based upon them for a future paper.

Pyrexia in "Surra."—The course of the disease in "surra" is characterized by a fever of a remittent or intermittent type, with irregular exacerbations, and not often rising beyond 104° F., falling, however, as low as 98° F. I am informed that the normal temperature of the horse is 100·4° F. The highest temperature may be followed by a gradual fall, and rise again gradually till, after an interval of five or six days, the maximum is reached, when it again falls, to be succeeded as before by a gradual rise; or in another case there may be diurnal exacerbations, the temperature chart reminding one forcibly of malarial fever in the human subject. I have before me ten charts of cases of "surra" in the horse and mule which all conform to one or other of the above descriptions.

The Blood in "Surra."—If the blood of a "surra" animal be examined with normal salt solution microscopically, the red corpuscles will be seen to present very characteristic changes.

"*Echinosis.*"—At one period they present a peculiar appearance, to which I have given the name of "echinosis" for the reason that the individual corpuscles have lost their normal contour and resemble nothing so much as an echinus. The echinoid condition will be referred to later on and an explanation of its cause offered.

Plasmodic.—At another period, or in some corpuscle at the same period, the interior of the corpuscle is seen to be occupied by a foreign substance presenting amœboid movements and of very various form, varying from circular through stellate and pileate forms to a veritable bacillar form, straight, curved, or spiral. These bodies, I take it, are comparable to if not identical with the *Plasmodium malariæ* of Marchiafava and Celli,* as they correspond in all particulars, both of morphology and development, with those organisms. In one specimen only have I found the spirillum (*Hæmatomonas*) *Spirochæt*, hitherto considered to be the effective cause of "surra," † whereas the organism, whose nature is now described, is invariably present and conforms in all particulars to the requirements of Koch's postulates; that is to say:

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* *Note.*—Celli, Marchiafava, and Weyl on Roman Malarial Fever, especially in Summer and Autumn. *Berliner klin. Woch.*, November 3, 1890.

† On the Lately Demonstrated Blood Contamination and Infective Disease of the Rat and of Equines in India. H. Vandyke Carter. *Scientific Memoirs by the Medical Officers of the Army of India*, Part III, 1888.

1. It is found in the blood.
2. It can be isolated and cultivated.
3. The pure cultivation reproduces the disease.
4. The organism is again found in the blood.

Life History of the Parasite.—I wish to make it clear that I do not lay claim to any finality in the remarks I am about to offer on the developmental history of this organism, as I feel I have not had a sufficient number of cases to warrant me in making dogmatic assertions; I merely put this forward as a statement of experimental results liable to such modification or confirmation as a more extended experience may lead me to adopt.

Echinoid Stage.—The blood, then, of a "surra" animal when in the stage of "echinosis" contains red cells to the surface of which are adherent, or in the substance of which are imbedded, minute circular organisms varying in size from 0·0004 mm. to 0·002 mm. in diameter. [These and all future measurements are referable to Zeiss's $\frac{1}{12}$ Hom. imm. lens with No. 3 micrometer eyepiece and tube fully drawn out.]

In some stages these circular organisms, which I shall for the future call "spores," are seen free in the plasma in variable quantities exhibiting actively motile properties. They attach themselves to the surface of the red blood-discs, giving rise to the "echinoid" corpuscles of early echinosis.

Plasmodic Stage.—After a variable time the cells lose their *echinoid* appearance and become *plasmodic*—that is to say, they become occupied by the bodies mentioned above, and compared to the *Plasmodium malariæ.* These plasmodic corpuscles are of irregular contour in most instances, only retaining their disc shape in those cases in which the plasmodium is circular, in other cases assuming more or less the shape of the plasmodium contained in them.

Spore Stage.—After a further period the plasmodia break up, undergoing rapid fission into "spores" 0·002 mm. in diameter, which escape from the blood-cell, causing "late echinosis," and become free in the plasma. The changes must be observed on a warm stage.

The red cell, having lost the spores, almost immediately resumes its normal contour, but only for an instant, as it rapidly loses all coloring matter,* and becomes translucent and all but invisible. These decolorized red cells may again be brought into view by adding a little watery spiller.

If now a slide in which these appearances have been watched is treated in the usual way for staining spores, it is seen to be full of minute deeply stained spores in a fibrinous reticular stroma, to the meshes of which the spores adhere.

In addition to the above organisms, the following objects are seen with varying frequency:

(*a*) Colorless wandering masses of plasma, ovoid in shape and beaked or flagellate at either pole, measuring 0·004 mm. in diameter. These stain with spiller.

(*b*) Ordinary leucocytes.

(*c*) Large, irregularly globose leucocytes mononuclear or polynuclear, in many cases containing the above beaked plasmodia (*a*) and frequently full of motile spores. These are evidently phagocytes.

(*d*) Mulberry-shaped, globose masses of yellow spores. These I have reason to believe are aggregations of spores in phagocyte cells, as they are more common when the animal is evidencing a resisting power against the disease, and may be observed in various stages of development.

(*e*) Pigment granules solitary or in phagocyte cells.

(*f*) Fusiform bodies 0·016 mm. in length, yellow, with white contents separated into two triangular segments with the bases centrally placed, resembling the bodies figured by Golgi as one stage in the development of Laveran's parasite.

Cultivation of the Organism.—If a drop of blood containing either "spores" or "plasmodia" (*i. e.*, echinoid or plasmodic corpuscles) be introduced into a nutrient medium such as agar-agar peptone, in a very short time, twenty-four to forty-eight hours, the blood loses its color and gradually a whitish-yellow growth with a foliated margin takes place on the surface of the medium. This growth, when examined under the microscope, is found to consist of a felted mass of bacilli; the individual bacillus measures from 0·002 mm. to 0·005 mm. in length by 0·0015 mm. in breadth; the ends are rounded and the bacillus is actively motile. It is so like the hay bacillus that I rejected my first cultivation, thinking that it was accidentally contaminated. Spore formation takes place either in the center or at either end; the spores are bright-yellow, glistening, 0·002 mm. in length, and nearly as broad as the bacillus itself, which, when sporing, is about 0·003 to 0·006 mm. in length, becoming often fusiform. The spores become free and reform bacilli in the usual way. If a specimen of blood, free from spores, is taken and some of the spore culture added to it, the spores are seen to attach themselves to the corpuscles.

Potato.—On *potato* the organism develops a brownish-yellow layer with a reticulated appearance, eventually forming a slimy layer with a peculiar earthy smell, consisting of bacilli and spores.

Milk.—On *milk* it grows rapidly into long leptothrix forms, the segments of which are shorter and broader than the individual bacillus which has the usual appearance.

Bouillon.—In *bouillon* the bacillus does not thrive; it grows longer and thinner and does not produce spores readily, and only at one end.

Inoculation of the Organism.—Frogs.—Frogs inoculated with pure culture containing bacilli and spores.

The bacilli were rapidly got rid of from the blood by phagocytosis, and numerous phagocyte cells could be seen heavily charged with spores. The red blood-cells also became plasmodic; inoculation of this blood into agar-agar peptone reproduced the bacilli a fortnight after the original inoculation.

Pigeon.—Pigeons appear to be refractory; no echinosis was observed, nor did any corpuscle become plasmodic, but very many "mulberry" bodies were observed.

Rabbit.—Rabbits appear to be very susceptible; subcutaneous inoculation of spore culture produced remittent fever with the characteristic appearance in the blood and reproduction of the bacilli from the blood when inoculated on agar-agar peptone on the fourteenth day. The rabbits, however, recovered with one exception, which died days after the temperature had become normal and inoculation of the heart blood gave negative results.

Goat.—Inoculation of goats was attended with no result.

All these experiments were duly controlled.

Finally, I wish to put on record that the above description applies in its entirety to ague, from the blood of which disease upon culture an identical bacillus can be obtained and the blood of which conforms in its pathological appearances with that of "surra."

Malarial Infection the Cause of "Surra."—I am therefore of opinion that "surra" is a disease of malarial origin comparable to ague, from the evidence which I have endeavored to briefly submit in this paper.

Further, this view of the pathology of "surra" is borne out both by the period of prevalence of "surra" which corresponds with that of ague, and also by the results of treatment. Quinine in full doses appears to control the disease, supplemented by general measures to combat the anæmia and weakness consequent on prolonged illness, chiefly by milk, iron, and arsenic; of the four cases which have occurred since I took up this subject, one was moribund when first seen and was shot as a hopeless case, one died of tetanus, and the other two are rapidly recovering.

I believe that the facts now put on record will, if followed as guides to diagnosis, enable the disease to be detected in the earliest stages when it may be rapidly cured; the reason why "surra" has hitherto been so uniformly fatal I believe to be simply because its real nature was not apprehended and the disease allowed to run on till the vital powers were sapped by the constantly recurring fever.

I would further put on record that as I have found the spores of this bacillus in well-water, it would appear that this is one mode of its access to the body; it is, however, evidently so widely spread in the air that I doubt whether much is to be hoped from precautions such as boiling the water used for watering the animals, the more so as the spores resist prolonged exposure to boiling temperature. Still, where "surra" is prevalent, this precaution and the prolonged exposure of all dry fodder to high temperature should certainly not be neglected as an accessory measure.

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* [*Note.*—This explains the profound anæmia which is so prominent a feature in the disease.]

My research is still going on, and I hope in the course of a few weeks to be able to publish the results *in extenso*, bearing as they do both upon ague in the human subject and its equivalent in the animal hitherto known by the name of "surra."

The relation which appears to be indicated between the *Plasmodium malariæ* and the *Bacillus malariæ* (Klebs) will be seen to be not the least interesting part of this investigation.

The Ætiology of Cheyne-Stokes Respiration.—At a meeting of the Section in Medicine of the Royal Academy of Medicine in Ireland, held on May 22d, Dr. M. A. Boyd read a paper in which he reviewed all the physiological explanations of this phenomenon offered by writers on the subject since Stokes's time to the present day. He particularly pointed out the very rational explanations offered by Traube and Filehne, who regarded the respiratory derangement from the altered nutrition of the respiratory-center point of view; and of those of the Dublin school, including Hayden and Little, who regarded it primarily from the cardiac point of view, and complimented the Dublin School as offering by far the best evidence, both clinically and pathologically, in explanation of the phenomenon. Dr. Boyd, having alluded to the marked rhythmical irregularities between the heart pulse and respirations in this affection, drew attention to a point which heretofore in the literature of the subject, so far as he was aware, had not been alluded to—namely, that the latter portion of the forced respiratory phase of the Cheyne-Stokes cycle was chiefly an expiratory one, in contrast to the first portion of it, which was an inspiratory one; and that this forced expiration had a most important bearing on the weak ventricles of the heart, by helping them to squeeze the blood, on the one side into the pulmonary artery, and on the other into the dilated and inelastic aorta. In proof of this, he exhibited sphygmographic tracings showing that it was only during this expiratory portion of the respiration that arterial tension was raised in the arteries, and that this tension continued through the apnœal period following, during which time the respiratory center was fully supplied with arterial blood and the weak and degenerated left ventricle resting. He regarded the apnœal period, during which time respiration was suspended, as only an effort on the part of the higher automatic centers to rest a heart the ventricle of which was too feeble to charge an arterial system the aorta of which might be dilated and inelastic, or the vaso-motor control of which might be defective, and whose own blood supply might be rendered insufficient in consequence, and its nutrition enfeebled. After the intrinsic muscle of the heart had been fed by this increased arterial tension of the expiratory and apnœal periods, forced inspirations began again, and the heart contractions were stronger, but they failed to fill the dilated aorta until the forced expirations, by making pressure on the ventricles, came to their aid again.

The most typical and pronounced forms of Cheyne-Stokes respiration were to be met with in alterations of the heart and aorta produced by degeneration and disease. The forms of it met with in cerebral disease, or injury, and in apoplexy and uræmic coma, without any primary engagement of the heart, he regarded as due to direct interference with the respiratory center in the medulla, either by pressure or by poisoned blood, and the phases of it were never so well marked as in those cases of the affection depending primarily on alterations in the heart.

Owing to its dual origin in this way came the differences of opinion as regarded its pathology. As regarded its treatment, Dr. Boyd found so much improvement following the inhalation of oxygen in all the cases where disease or degeneration of the heart produced it, that he urged a trial of this remedy in all such cases, and ventured to suggest, from his experience of the remedy, that it should be tried not alone in this affection but in all cases where degeneration of the heart existed from any other cause.

The American Orthopædic Association will hold its fifth annual meeting in Washington, on September 22d, 23d, 24th, and 25th. The programme contains the following titles: The President's Address, by Dr. A. B. Judson, of New York; The Orthopædic Work of the Late Mr. Thomas, by Dr. A. J. Steele, of St. Louis; Uniform Nomenclature in Orthopædic Surgery, by Dr. W. R. Townsend, of New York; Two Cases of a Peculiar Type of Primary Crural Asymmetry, by Dr. Henry Ling Taylor, of New York; On the Best Means of Preventing a Loose Joint or Dangling Limb after Resection at the Shoulder Joint, with an Illustrative Case, by Dr. W. R. Whitehead, of Denver; A Case of Spina Bifida with Partial Motor and Sensory Paralysis, Double Equino-varus, and Purulent Bursitis, by Dr. H. Augustus Wilson, of Philadelphia; Congenital Club-foot, with Absence of the Great Toe and the Contiguous Bones of the Instep, by Dr. T. M. L. Chrystic, of New York; A Case of Club-foot, Club-hand, and Multiple Joint Deformity, by Dr. William E. Wirt, of Cleveland; On the Use of the Wrench in the Treatment of Club-foot, by Mr. Robert Jones, of Liverpool; Operation upon the Concave Surface in Talipes Equino-varus, by Dr. B. E. McKenzie, of Toronto; The After-treatment of Excision of the Knee Joint, by Dr. John C. Schapps, of Brooklyn; Gonorrhœal Rheumatism and its Treatment, Primary and Secondary, by Mr. B. E. Brodhurst, of London; Atrophy in Joint Disease, by Dr. E. G. Brackett, of Boston; The Diagnostic and Prognostic Value of High Temperature in Chronic Joint Disease, by Dr. Robert W. Lovett, of Boston; On the Tests for Recovery from Joint Disease, by Mr. Robert Jones, of Liverpool; Apparatus for Making Traction, by Dr. William E. Wirt, of Cleveland; Some Lateral-traction Fixation Hip Splints, by Dr. A. M. Phelps, of New York; Rhachitis in Adolescence, by Dr. Bernard Bartow, of Buffalo; The Aspirator in Orthopædic Practice, by Dr. Ap Morgan Vance, of Louisville; Congenital Misplacement of the Hip, with New Apparatus for its Treatment, by Dr. A. M. Phelps, of New York; A Study of Atrophies, by Dr. Roswell Park, of Buffalo; The Diagnosis of Pott's Disease, by Dr. Robert W. Lovett, of Boston; The Differential Diagnosis in Pott's Disease, by Dr. G. W. Ryan, of Cincinnati; Syphilitic Pott's Disease in Children, by Dr. John Ridlon, of New York; Pott's Disease and Pregnancy, by Dr. T. Halstead Myers, of New York; Paraplegia in Pott's Disease, by Dr. E. G. Brackett, of Boston; Pressure Myelitis in Pott's Disease; by Dr. Albert Hoffa, of Würzburg; Abscesses in Pott's Disease, by Dr. Herbert L. Burrell, of Boston; Abscesses in Pott's Disease, by Dr. W. R. Townsend, of New York; The Evacuation of Spinal Abscesses without Drainage, by Mr. George Arthur Wright, of Manchester; Bilateral Lumbar Abscess, with a Case, by Dr. James K. Young, of Philadelphia; The Benign Course of Abscesses in Pott's Disease under Efficient Mechanical Treatment, by Dr. Newton M. Shaffer, of New York; The Value of Mechanical Treatment in Old and Neglected Cases of Pott's Disease, by Dr. Henry Ling Taylor, of New York; The Mechanical Treatment of Pott's Disease, with an Exhibition of Apparatus, by Dr. A. M. Phelps, of New York; Malignant Disease of the Vertebræ simulating Pott's Disease, by Dr. A. B. Judson, of New York; Paralysis in Pott's Disease, by Dr. Charles L. Scudder, of Boston; Prognosis in Pott's Disease, by Dr. Samuel Ketch, of New York; Proposed Treatment of Pott's Disease by Wiring the Vertebral Processes, by Dr. B. E. Hadra, of Galveston; The Operative Treatment in Spinal Caries, by Dr. De Forest Willard, of Philadelphia; The Treatment of Pott's Disease, with especial reference to the Early Stage, by Dr. Bernard Bartow, of Buffalo; Pott's Disease in Adults, by Dr. A. J. Steele, of St. Louis; Pott's Disease in Middle and Advanced Life, by Mr. Howard Marsh, of London; Cervical Spondylitis, by Dr. L. A. Weigel, of Rochester; The Prevention of Unnecessary Deformity in Pott's Disease, by Dr. Royal Whitman, of New York; A Brief History of the Use of Suspension in Pott's Disease, by Dr. Benjamin Lee, of Philadelphia; Recumbency in Pott's Disease, by Dr. Ap Morgan Vance, of Louisville; Extension in Pott's Disease, by Dr. B. E. McKenzie, of Toronto; Extension in Bed, by Dr. Charles C. Foster, of Cambridge; Traction and Fixation in Pott's Disease, by Dr. Reginald H. Sayre, of New York; The Treatment of Pott's Disease, by Dr. V. P. Gibney, of New York; The Comparative Value of the Present Modes of Treatment of Caries of the Spine, by Dr. E. H. Bradford, of Boston; A Further Contribution to Typhoid Spine, by Dr. V. P. Gibney, of New York; The Treatment of Congenital Dislocations of the Hip, by Dr. E. H. Bradford, of Boston; On Elongation of the Ligamentum Patellæ as a Factor in the Production of Certain Knee Troubles and Difficulties in Locomotion, by Dr. Newton M. Shaffer, of New York; Observations on Torticollis, with Particular Reference to the Significance of the so-called Hæmatoma of the Sterno-mastoid Muscle, by Dr. Royal Whitman, of New York; Ten Cases of Excision of the Knee Joint for Disease, and their Lessons, by Dr. Joseph D. Bryant, of New York; Rheumatic Spondylitis, by Dr. G. W. Ryan, of Cincinnati; The Definition and the Scope of Orthopædic Surgery, by Dr. V. P. Gibney, of New York; The Relations of Lateral Curvature of the Spine and Flat-foot, by Dr. Paul Redard, of Paris; The Pathological Anatomy of Lateral Curvature of the Spine, by Dr. F. Beely, of Berlin; Means of Recording Rotation in Lateral Curvature, by Dr. E. H. Bradford, of Boston; A Contribution to the Ætiology of Lateral Spinal Curvature, by Dr. Charles L. Scudder, of Boston; Modifications in the Treatment of Lateral Curvature, by Dr. E. H. Bradford, of Boston; Spastic and Infantile Paralyses, by Dr. De Forest Willard, of Philadelphia; The Operative Treatment of Spastic Paralysis, by Dr. L. A. Weigel, of Rochester; The Operative Treatment of Spastic Paralysis, by Dr. Charles L. Scudder, of Boston; Additional Notes on Sacro-iliac Disease, by Dr. Benjamin Lee, of Philadelphia.

The Association of American Physicians will hold its sixth annual meeting in Washington on September 22d, 23d, 24th, and 25th. The programme includes the President's Address, by Dr. William Pepper, of Philadelphia; A Discussion on the Treatment of Visceral Tuberculosis by Koch's Method (by Dr. F. P. Kinnicutt, of New York, Dr. Harold C. Ernst, of Boston, Dr. William Osler, of Baltimore, and Dr. Musser and Dr. Griffith, of Philadelphia); The Climate of Southern California for Respiratory Diseases—a Preliminary Paper, by Dr. Norman Bridge, of Los Angeles; Experimental Studies on the Causes of the Localization of Pulmonary Phthisis and certain other Infectious Diseases in the Lungs, by Dr. J. W. Roosevelt, of New York; A Discussion on the Remote Results of the Removal of the Ovaries and Tubes (referee, Dr. William T. Lusk, of New York; co-referee, Dr. Wharton Sinkler, of Philadelphia); Nerve Stretching in Inveterate Cases of Trigeminal Neuralgia, by Dr. James Stewart, of Montreal; On the Diseases of the Kidney popularly called "Bright's Disease," by Dr. Francis Delafield, of New York; Note on the Recognition of Certain Cases of Epilepsy accompanied by Albuminuria which might be mistaken for Cases of Uræmic Convulsions, by Dr. James Tyson, of Philadelphia; Bradycardia in Acute Articular Rheumatism, by Dr. I. E. Atkinson, of Baltimore; A Discussion on the Relations between Arterial Disease and Visceral Changes (referee, Dr. George L. Peabody, of New York; co-referee, Dr. W. T. Councilman, of Baltimore); Intestinal Perforation in Typhoid Fever, by Dr. R. H. Fitz, of Boston; The Relation of Drinking-water to Disease, by Dr. Henry P. Walcott, of Cambridge; A Contribution to the Pathology of Pernicious Anæmia, by Dr. J. P. Crozer Griffith and Dr. Charles W. Burr, of Philadelphia; On Changes in the Red Blood-corpuscles in the Pernicious Anæmia of Texas Cattle Fever, by Dr. Theobald Smith, of Washington; The Condition and Prospects of the Library of the Surgeon-General's Office, and its Index Catalogue, by Dr. John S. Billings, of Washington; Sequel to a Case of Slow Pulse (Purdy), by Dr. D. W. Prentiss, of Washington (Report of Autopsy, by Dr. Robert T. Edes, of Washington); Grave Forms of Purpura Hæmorrhagica, by Dr. J. H. Musser, of Philadelphia; The Pathological Histology of Acute and Chronic Appendicitis, by Dr. William F. Whitney, of Boston; and The Treatment of Typhoid Fever by Systematic Cold Bathing, by Dr. James C. Wilson, of Philadelphia.

The American Dermatological Association will hold its fifteenth annual meeting in Washington, on September 22d, 23d, 24th, and 25th, under the presidency of Dr. F. B. Greenough, of Boston. The programme includes the following titles: Report of the Committee on Nomenclature, and discussion thereon; Dermatitis Hæmostatica, by Dr. H. G. Klotz; A Case of Lupus Erythematosus with Fatal Complications, by Dr. W. A. Hardaway; Report of a Case of Universal Erythema Multiforme, with Colored Portrait and Specimen, by Dr. L. A. Duhring; An Unusual Case of Sarcoma involving the Skin of the Arm; Amputation; Recovery, by Dr. F. J. Shepherd; Multiple Sarcomata; History of a Case showing Modification and Amelioriation of Symptoms with Large Doses of Arsenic, by Dr. S. Sherwell; Discussion on Tuberculosis of the Skin (its Clinical Aspects and Relations, by Dr. J. C. White; its Pathology, by Dr. J. T. Bowen; its Treatment, by Dr. G. H. Fox); Thirteen Cases of Tuberculosis of the Skin, with their Treatment, by Dr. J. S. Howe; A Case of Lichen Scrofulosorum, by Dr. J. Grindon; Notes of a Visit to the Leper Hospital at San Remo, Italy, with Photographs, by Dr. L. A. Duhring; The Treatment of Alopecia Areata, by Dr. P. A. Morrow; A Therapeutic Note on Alopecia Areata, by Dr. L. D. Bulkley; The Morphia Atrophica of Wilson, by Dr. R. W. Taylor; The Treatment of Pruritus, by Dr. E. B. Bronson; Prairie Itch, by Dr. L. N. Denslow; Diseases of the Skin associated with Derangements of the Nervous System, by Dr. W. T. Corlett; The Treatment of Chronic Ringworm in an Institution for Boys, by Dr. L. A. Duhring; Notes of a Case of Acute Dermatitis Exfoliativa, by Dr. J. E. Graham; Note relative to Pemphigus Vegetans, by Dr. J. N. Hyde; A Study of Mycosis Fungoides, with Report of a Case, by Dr. H. W. Stelwagon and Dr. H. Leffingwell Hatch; Lymphangeioma Circumscriptum, with Report of a Case, by Dr. M. B. Hartzell; Remarks on Carbuncle, with Report of a Peculiar Case, by Dr. H. G. Klotz; Note on Erythema et Nævus Nuchæ, by Dr. C. W. Allen; A Case of Lichen Ruber, by Dr. J. Grindon; The Personal Equation in Dermatology, by Dr. L. D. Bulkley; The Hypodermic Use of Hydrargyrum Formidatum in Syphilis, by Dr. R. B. Morison; Retarded Hereditary Syphilis, by Dr. R. B. Morison; Epilation; its Range of Usefulness as a Dermato-therapeutic Measure, by Dr. J. Zeisler.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, August 8, 1891.

Original Communications.

THE PLACE OF FIXATION IN THE TRACTION TREATMENT OF HIP DISEASE.*

By ROBERT W. LOVETT, M. D.,
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I do not come among you with the purpose of bringing up the never-ending question whether hip disease is best treated by traction or fixation, but, as a believer in the treatment by traction, to discuss simply the place which fixation should occupy in that treatment, to consider whether apparatus should aim only at producing traction, or whether it should have as its object to fix the joint as well. It seems to me that these are pertinent questions to those who are treating hip disease by ambulatory methods.

It seems, moreover, that these are pertinent questions if, as I hope to show, the defect of our present treatment lies in the incomplete fixation which it affords to many diseased hip joints. To those who believe in the traction treatment it is incumbent to perfect, so far as may be, that method.

The subject seems to divide itself into two heads:

(*a*) The question of the advisability of using in certain cases a splint which shall give better fixation than the long traction splint, and the consideration of the class of cases in which this is advisable.

(*b*) The indications for bed fixation, and the class of cases in which this is necessary, and what is to be expected from its use.

There is no question that the American traction splint now in common use in this country was first introduced as an appliance which should give "passive motion without friction." It was not regarded at that time as a fixative appliance. Dr. Sayre spoke of it as "a plan by which extension could be maintained that would remove pressure from the acetabulum and the head of the femur, and at the same time permit motion of the joint." Dr. C. F. Taylor stated the object of the splint to be, "first, to relieve the pressure of the joint due to the muscular contraction by temporarily destroying the muscular irritability and contractility, and, secondly, to protect the joint from weight and concussion." No mention is made of it by him as a fixative appliance, and he adds that the indication for arresting motion in the joint, which is well met by the gypsum bandage and similar expedients, pertains only to a condition of rigid muscular contraction. In short, he did not mention fixation as an attribute of the splint.

Subsequently, however, traction came to be regarded as a means of fixation, and Dr. Judson † quoted such authority as Shaffer, Yale, Wyeth, Bauer, and others, as upholding the view that the long traction splint afforded fixation to the hip joint. But, as he says in the following paragraph of his admirable essay, "the fixation of the hip joint is one of the most difficult problems in mechanical surgery."

Two years ago I had the pleasure of reporting to the American Orthopædic Association some experiments which were made with a view to determining the practical fixation furnished to the hip joint by a long traction splint properly applied, and the little that they show must, it seems to me, be accepted as demonstrating that the long traction splint is in no sense a fixative appliance.

In these experiments a long-traction splint was fitted with a self-registering pencil, by means of which motion at the hip joint was recorded upon the skin over the ilium. This was done simply by carrying the shaft up, so that it held the pencil perpendicularly to the skin. A splint fitted with this register was applied to a boy with normal hip joints, and traction was made up to the usual point, being about three pounds and a half, as registered by a spring balance inserted in the extension straps. With this splint on, the boy was allowed to walk, and it was found that the hip described an arc of thirty-five degrees of joint motion. In sitting down and rising, an arc of similar extent was described. In another case with normal hip joints the motion was found greater, and the register showed a motion of forty degrees. With a very severe amount of traction—so much so that it was almost unendurable—motion of fifteen degrees was recorded. This apparatus was first tested by being applied to a patient with ankylosis of the hip, when it was found that no motion was recorded, the register marking by a dot.

These experiments certainly seem to show that to a healthy hip joint the long traction splint affords very imperfect fixation, and it may be inferred that to a diseased joint equally poor support is afforded.

The question then arises, Is this a matter of any practical importance, and is not the fixation furnished sufficient?

There seems but little question that in mild hip disease, where joint motion is allowed in a fairly wide arc, motion within the limits of that arc is not harmful.

Dr. C. F. Taylor believed that "motion in the joint without pressure is not only not injurious, but beneficial," and Dr. Shaffer, in his recent classical essay on the mechanical treatment of hip disease, says: "If the disease permits a certain amount of motion at the affected articulation, motion within the limit set by Nature is not harmful."

But it must be evident that it is practically a difficult matter to allow joint motion and to check it at the point where harm begins with an appliance which allows thirty degrees or more of joint motion.

I think every one will agree with me that a certain proportion of cases of hip disease do not progress well under treatment with the long traction splint.

These cases seem to be of two sorts: First, those where the disease is very severe, and, secondly, those where the splint does not afford sufficient protection to the diseased joint on account of the patient's constant and harmful activity. Many patients who come under my observation at least are allowed by their parents to go about all day, and to play as much as they choose. With their traction splints on they climb fences, run races, and play rough games, and in these cases it is a common experience to find that there is little motion at the joint, and that it tends to grow less rather than more. Such joints generally become sensitive and tend to malposition, and this sensitiveness is in a way a protection, because it necessitates rest, and with rest comes improvement in the sensitiveness, and probably an increase of joint motion. With the improvement, the activity begins again, and with the fresh misuse of the limb the sensitiveness and the malposition are likely to return, and the same circle to be gone over and over again, until probably an abscess or some more serious condition is developed. It is therefore for this reason that, in such cases, it seems advisable to limit if possible the joint motion that has been demonstrated to be allowed by the traction splint—in the first place, in the hope of shortening the disease, and, in the second place, in the hope of preventing malposition. I have assumed that malposition occurs more often as the result of undue activity and joint traumatism. Certainly, the rapidity with which malposition disappeared under the simplest treatment of rest and joint fixation would lead one to infer that their appearance was caused by undue activity. Moreover, it must come into the experience of every surgeon that, even without confinement to bed, restriction of the activity of these patients will very often cause the disappearance of such a malposition. In certain cases, of course, the severity of the disease is enough to cause the malposition, but in general, I think, it will coincide with the experience of the gentlemen present to state that the malposition is in most cases the result of imperfect control and to motion in the joint beyond the limit set by Nature.

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* Read before the Section in Orthopædic Surgery of the New York Academy of Medicine, April 17, 1891.

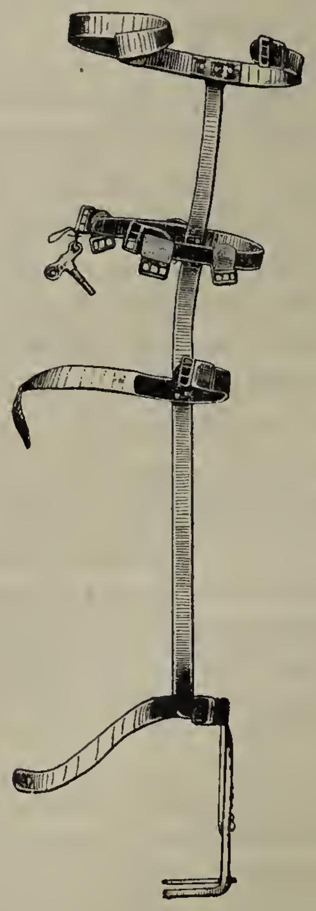
† *Med. Rec.*, July 7, 1883.

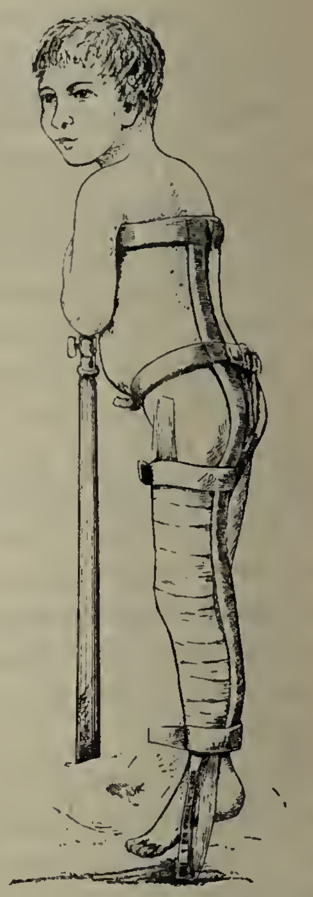
It stands to reason that the disease must be prolonged by such exacerbations as those described, and the deposit of inflammatory material must be larger than it would be if these causes of irritation were avoided. Certainly such cases as these are very common in every hospital clinic, and any means which would make their number less must appeal to those who believe in ambulatory traction treatment. It is, therefore, for these cases, and cases where the disease is of unusual severity in the beginning, that I would plead for more fixation in connection with the ambulatory treatment. In the hope of doing something to further this end, I have to show a splint which has been very useful in preventing joint traumatism by furnishing better fixation to the hip than is afforded by the ordinary splint.

I showed a similar splint at the Congress of Physicians and Surgeons in 1888, but it lacked one very important feature which this splint possesses—namely, a pelvic band.

The splint consists practically of a combination of the Taylor and the Thomas splints, and should be bent to fit the curve of the back accurately. It secures a hold on the thorax by the upper hinged piece, it has the hip band of a Taylor splint, with two perineal bands, and the leg piece is in a measure like the Thomas splint again, except that it is prolonged beyond the foot to end in a traction apparatus. The splint does not attempt to force the leg into position by using the lever principle, and for this reason it is curved to fit the back. It simply aims at making traction, and while doing this it fixes the hip as much as can be done by any portative appliance.

The splint without the pelvic band failed to hold the pelvis as it should, and it was possible for the buttock and pelvis to slip away from its grasp; but this splint is definite in its support, and holds the leg, pelvis, and thorax with no uncertain hold.





The splint is heavy and cumbersome and makes it awkward for the patient when he attempts to sit down. It is uncomfortable inasmuch as it necessitates the constant use of crutches and a high shoe on the other foot, but these disadvantages are all accompaniments of hip fixation, and it must be evident that this splint, if properly fitted, is likely to afford much better fixation to the joint than any splint which ends at the pelvis.

I am far from wishing to advocate the routine application of this splint. In private practice it would be of little use, but it does seem to me that in the large clinics, where the patients are not under good control, the results would be better if some splint of this sort were applied in the cases which seemed of decided severity, and in average cases where the parents seemed to have poor control over their children.

Personally I use it in out-patient practice in cases where sensitiveness of the hip is present to any extent, where the temperature is high, or where there is much induration of the soft parts; in short, in that whole class of cases which one characterizes unscientifically as "bad cases."

In addition to these cases, in those where the children are unruly and disobedient and the parents evidently shiftless and easy-going, I apply the splint without much regard to the severity of the disease, believing that it is better to err on the side of affording too much fixation rather than too little.

In short, the long traction splint does not fix the hip joint, and when used it should be borne in mind that it allows motion at the hip, perhaps within the limits set by Nature, perhaps beyond those limits.

The second division of the subject can be discussed more briefly. Fixation in bed seems advisable when sensitiveness occurs in the joint, or malposition of the limb begins to appear. I make this statement on the ground of the experience at the Boston Children's Hospital, where this policy has been pursued very carefully for several years. The success of this method of treatment has been so marked that each year has shown an increase in the number of cases admitted.

In 1888, 42 cases of hip disease were admitted to the ward; in 1889, 59 cases; in 1890, 81 cases.

In these years the percentage of cases admitted for deformity and sensitiveness has steadily increased, and the percentage of cases admitted for abscess has steadily diminished. Of the 182 patients admitted in these three years (which are all that it has been possible to analyze), 107 were admitted for deformity or sensitiveness, and stayed only a short time in the hospital, returning to the out-patient department for ambulatory treatment, while only 54 cases were admitted for abscess and 23 for application of apparatus.

I am indebted to Dr. J. E. Goldthwait for invaluable assistance in collecting these and my other figures.

It has seemed to those of us who have had the opportunity to observe these cases that, had the admission of the sensitive cases been longer delayed, the proportion of abscesses would have been distinctly larger, and it is to our figures with regard to the occurrence of abscess that I would particularly call your attention.

The percentage of abscesses in the class of cases treated in this way is surprisingly small. From 1884 to 1890, inclusive, there presented themselves at the Out-patient Department of the Children's Hospital 574 new cases of hip disease. In pursuance of the operative treatment of these abscesses which we have followed out for some years, practically all cases of abscesses were admitted to the hospital as soon as they appeared. In those years when 574 new cases appeared at the Out-patient Department, 107 abscesses were opened in the hospital, which means that 107 cases either had an abscess at the time of coming or developed it in the course of the disease. This gives a percentage of 18·7 per cent., which is very much lower than in any other series of cases reported. There may be a slight error, amounting to 1 or 2 per cent., caused by exceptional cases of abscesses which were not operated upon, but these were so few that they would make very little difference in the percentage.

This low rate of abscesses becomes very striking when one considers it in comparison with the similar groups of reported cases. In the 80 cases reported by Dr. Gibney in 1878, 60 per cent. had abscess; in the Clinical Society's report, 69 per cent. had abscess; and even in the recent cases of Mr. Marsh from the Alexandra Hospital, covering nearly the same years as those which I report now, 50 per cent. developed abscesses.

It is, of course, to be assumed on this basis that the malposition is to be regarded as a precursor of abscess, and that, by treatment of the malposition as soon as it appears, the occurrence of abscess is prevented in a very large number of cases. Certainly the figures which I have presented to you to-night justify me making the statement that this is to be regarded as the preventive treatment of abscess. It has been possible to investigate the 37 abscesses operated on in 1889 and 1890 with regard to the coexistence of deformity.

Of the 37 abscesses operated on in 1889 and 1890, 5 were not accompanied by any deformity of the limbs (in 5 the notes were imperfect), while in 27 there was present marked or severe malposition of the limb.

It therefore seems that the adoption of fixation in bed is to be advocated when malposition occurs, on the ground not only of curing the malposition, but on the supposition that it serves to prevent the occurrence of abscess in a very large proportion of cases, and in that way to avoid one of the most troublesome and uncomfortable complications of the disease.

In summing up, it may be said that the order of events seems to be this: Imperfect joint fixation allows joint motion beyond the limits set by Nature and malposition of the limb occurs, which is the expression of joint irritability.

It is desirable to prevent this, if possible, by better fixation; but, if it has occurred, it should be treated at once by rest in bed, to prevent its passing on to the stage of abscess formation.

I have not, I fancy, added anything to the literature of hip disease, or brought forward anything that is new. I hope that I have succeeded in calling your attention to the fact that the traction splint in common use is not a fixation splint, and that in certain cases better fixation would be desirable in ambulatory treatment, and perhaps the splint shown may be of use in this direction. It seems to me that the more important fact which has been discussed is the extreme importance of the immediate treatment of joint sensitiveness or malposition by temporary rest in bed, with traction in the line of the deformity.

"LA GRIPPE"

AS A CAUSE OF RETRO-BULBAR NEURITIS AND OTHER OCULAR NERVE LESIONS.*

By JOHN E. WEEKS, M. D.,
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Various writers within the last two years have endeavored to show that in a limited number of cases the prevailing epidemic of influenza, commonly known as *la grippe*, has been responsible for almost all of the many forms of inflammatory diseases of the eye. Badel (1) mentions catarrhal and follicular conjunctivitis, blepharitis ciliaris, eczema, hordeolum, phlegmon of the sac; Copez (Brussels), croup and diphtheria; Galezowsky (2), episcleritis; Badel, eruptive and suppurative keratitis, iritis, and irido-chorioiditis; Guttmann (3), keratitis dendritica; Hosch (4), purulent irido-chorioiditis; Laqueur (5), embolic irido-chorioiditis and embolism of the central artery of the retina; Hosch, suppurative hyalitis; Adler (6) and Eversbusch (7), acute glaucoma; Fuchs (8), Bergmeister (9), and Scharpringer (10), suppurative and non-suppurative tenonitis; Valude (11), phlegmon of the orbit. The evidence adduced for considering some of the above-mentioned conditions to be due to *la grippe* is extremely meager. We can not see that blepharitis ciliaris, eczema, croup, diphtheria, episcleritis, and acute glaucoma are other than of accidental occurrence during an attack of this disease. The extensive and severe inflammatory conditions induced in the mucous membranes of the upper air-passage make it highly probable that simple and muco-purulent conjunctivitis is induced by *la grippe*, and the frequency with which these forms of conjunctivitis accompany this disease is proof sufficient. It is possible that the suppurative processes mentioned above are as certainly due to the pathogenic agency in the production of *la grippe* as are the conjunctivites, as it has been shown by Fuchs that the micro-organism so fully described by Klebs (11), Weichselbaum (12), Babés (13), and others was present in at least one case of purulent tenonitis observed by him. However, there remains much to be proved to make this possibility a certainty.

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* Read before the Section in Ophthalmology and Otology of the New York Academy of Medicine, May 18, 1891.

La grippe appears to be a disease which possesses an affinity for nervous tissue, the symptoms produced being largely those that can be explained on this hypothesis alone —the effect on the sensory nerves producing the definite and indefinite pains experienced in various parts of the body; on the nerves of special sense, producing disturbances in the senses of taste, of smell, of vision, and of hearing; on the motor nerves, producing the various paralyses that have been observed; and on the vaso-motor system, inducing the chilly sensations at first, and later the congestions, of lungs, mucous membranes, and other tissues, by first contraction of the lumen of vessels from initial irritation, and later by paralysis of vaso-motor branches. Although severe implication of the central nervous system, causing death, has been observed, the manifestations of influenza in the nervous system have most frequently been in the form of peripheral neurites, and it is to these conditions as they affect the eye that I will now call your attention. The conditions that have deen observed, referable to peripheral neuritis, are periorbital and orbital neuralgia, anæsthesia of the cornea, eruptive keratitis (herpes), paralysis of the accommodation, paralysis of the superior rectus, paralysis of the external rectus, paralysis of the muscles supplied by the motor oculi, one-sided ophthalmoplegia externa and interna, paralysis of the cervical sympathetic on one side, with prominence of the globes, paralysis of the facial, and retro-bulbar neuritis.

Migraine and orbital neuralgia as symptoms of *la grippe* are well known and need no elaboration.

Anæsthesia of the cornea has been noticed by Galezowsky, reported by Gazis (14), and by Bergmeister. The condition was uniocular in some and binocular in other cases. Complete recovery of sensibility occurred in a few days.

Paralysis of the accommodation has been observed by Bergmeister, D'Eperon (15), and by Gorecki (16). The two observed by Bergmeister are typical and are as follows:

Case I.—Boy, aged twelve years, had influenza three weeks previous, at which time he suffered from great pain in the head and had a high temperature lasting three or four days. St. Pr.: Pupils enlarged. V. in each eye is $\frac{6}{5}$ for distance. Reads J. 6 at 60 ctm. With + 3 Ds. reads J. I at 20 ctm. Recovery.

Case II.—Female, aged thirty-five years, recovering from influenza. V. in each eye equaled $\frac{1}{2}$; with + 1 Ds. V. equaled $\frac{6}{6}$; with a + 3·5 Ds. V. equaled J. j at 10 to 20 inches. Interior normal. Pupils wide. Recovery.

Of paralysis of the extrinsic muscles Badel reports two cases as follows:

Case I.—Male, aged thirty-three years, employed in the military bureau. No rheumatism, no syphilis. The patient had an attack of *la grippe* with severe cephalalgia lasting three or four days. At the beginning of convalescence the patient began to see double. Examination showed paresis of the muscles supplied by the third nerve on the right side amounting to paralysis of the superior rectus. There was no mydriasis or loss of accommodation. Recovery took place slowly.

Case II.—Male, aged fifty-seven years. No rheumatism or syphilis. At the close of an attack of influenza, which lasted six days and was accompanied with severe cephalalgia, patient noticed that objects at a distance appeared double. Examination showed paralysis of the right external rectus. At the end of five days double images could only be produced by putting a red glass before one eye. Recovery rapid and complete.

Uhthoff (from an extract by G. Lynn, *Sem. médicale*, 1890, p. 307) mentions a case of paralysis of the accommodation complicated with progressive ophthalmoplegia externa with symptoms of bulbar paralysis.

Greiff (17) reports a case of paralysis of the left cervical sympathetic occurring in a patient of thirty-one years. There was enlargement of the left thyreoid gland, the globes were prominent, and the heart action was rapid and irregular. Ptosis of the right upper lid developed.

Of neuritis of the optic nerve the retro-bulbar form has been most frequently observed. Papillitis has been noticed in some of the cases, five of which I have found reported. They are briefly as follows:

Case I (reported by Gazis).—Female, aged eighteen years. Attack of influenza in January, 1890, accompanied with severe frontal cephalalgia. Six days after the attack, failure of the vision of the right eye was noticed. At the end of three weeks, at which time she consulted Dr. Galezowsky, the vision had improved a little. Vision now equaled $\frac{1}{8}$. The ophthalmoscopic examination showed the papilla to be congested and œdematous as compared with the fellow-eye. Slight paling of the disc resulted after some weeks. The vision became almost normal.

Case II (reported by Vignes (18)).—Female, aged twenty-seven years, was first seen on January 20, 1890. Two weeks previous the patient had had a severe attack of influenza. Frontal cephalalgia had been intense. On the eighth day after the beginning of the attack the patient noticed that she could only see the upper part of objects with the left eye. On the following day the vision declined to nothing. The ophthalmoscopic examination showed no change in the right eye. The pupil was dilated in the left. Papilla œdematous, slightly elevated; margins hazy, arteries very small, veins but little changed. No arterial or venous pulse.

January 31st.—Papilla not so swollen. L. E. V. equals perception of light.

February 7th.—Patient sees movements of the hand.

June 28th.—V. = $\frac{3}{100}$. Disc very pale.

Gutmann reports three cases as follows:

Case I.—Female, aged fifty-eight years. A few days after the commencement of an attack of influenza the vision began to fail in both eyes. When the patient was examined the vision equaled $\frac{1}{7}$ in the right eye and $\frac{1}{3}$ in the left eye with correction glasses. Hyperæmia of the papillæ was present. The patient had incipient cataract.

Case II.—Male, aged fifty-two years, had *la grippe* in January. Eight to fourteen days after the attack began vision failed rapidly, and continued to decrease until the patient was unable to distinguish people passing on the street. At the same time there was weakness of the legs. There was no syphilis. Urine normal. Patient was not intemperate. When seen the V. R. E. = $\frac{1}{14}$; V. L. E. = $\frac{1}{5}$. The fundi were normal. There was a relative central scotoma for white and colors of about 20° in the right and 10° in the left eye. Before his illness the patient had read fine print with either eye with a + 1·75 D. Pupils normal. Incipient cataract both sides.

March 11th.—V. R. E. = $\frac{4}{9}$; V. L. E. = $\frac{4}{6}$.

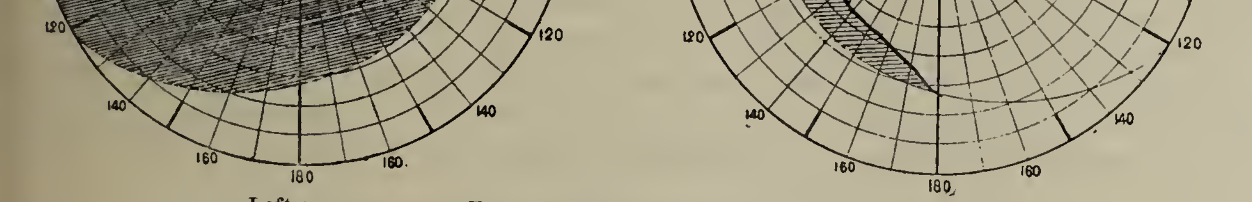
Case III.—Male, aged fifty-five years. Influenza in February. Had great pain in the region of the eyes. Failure of vision began a few days after the commencement of the disease.

March 1st.—V. equaled $\frac{4}{6}$ in each eye. Concentric limitation of fields, with central relative scotoma for white and for colors of about 16° in both eyes. Papillæ hyperæmic. Veins dilated and tortuous. Arteries smaller than normal. Delicate cloudiness of the retina above and inward.

May 5th.—V. equals $\frac{14}{15}$; a ring scotoma has taken the place of a central scotoma. No history of syphilis.

In the following cases no papillitis was observed. Possibly it had existed in the early stage of the affection. D'Eperon reports six cases:

Case I.—Male, aged thirty-six years. Had influenza, with severe cephalalgia, in January. The vision began to fail very shortly afterward. St. Pr.: L. E. V. = $\frac{1}{100}$; R. E. V. = $\frac{1}{15}$. The fields of both eyes are contracted from the periphery. There is a central scotoma for red and green in the right eye. Ophthalmoscopic examination reveals partial atrophy of the nerves. No symptoms of tabes. Does not use alcohol or tobacco to excess. Treatment without results. (See charts.)



Left eye. Fig. 1.—Case I (D'Eperon). Right eye.

Case II.—Female, aged thirty-five years. Had suffered from a severe peri-orbital neuralgia for a few days before she noticed a diminution in her vision—probably a light attack of *la grippe*. Five weeks ago the vision of the left eye became very much reduced; it now equals $\frac{1}{150}$. Examination of the field of vision discloses an absence of almost the entire nasal half, including the point of fixation (see chart). Right eye normal in every respect. Diagnosis, retrobulbar neuritis. Treatment without result.

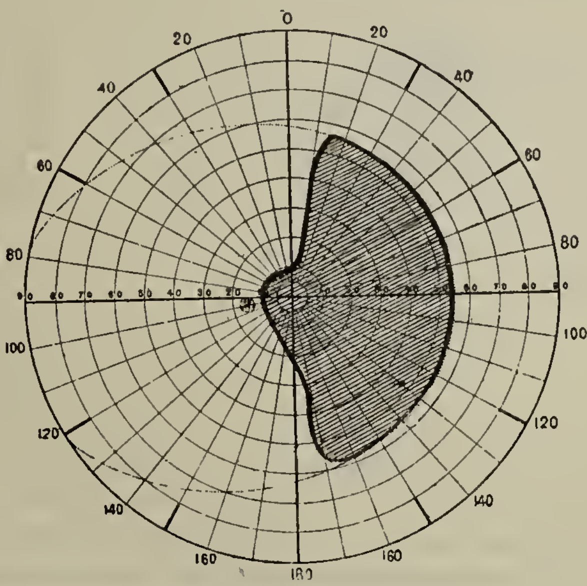
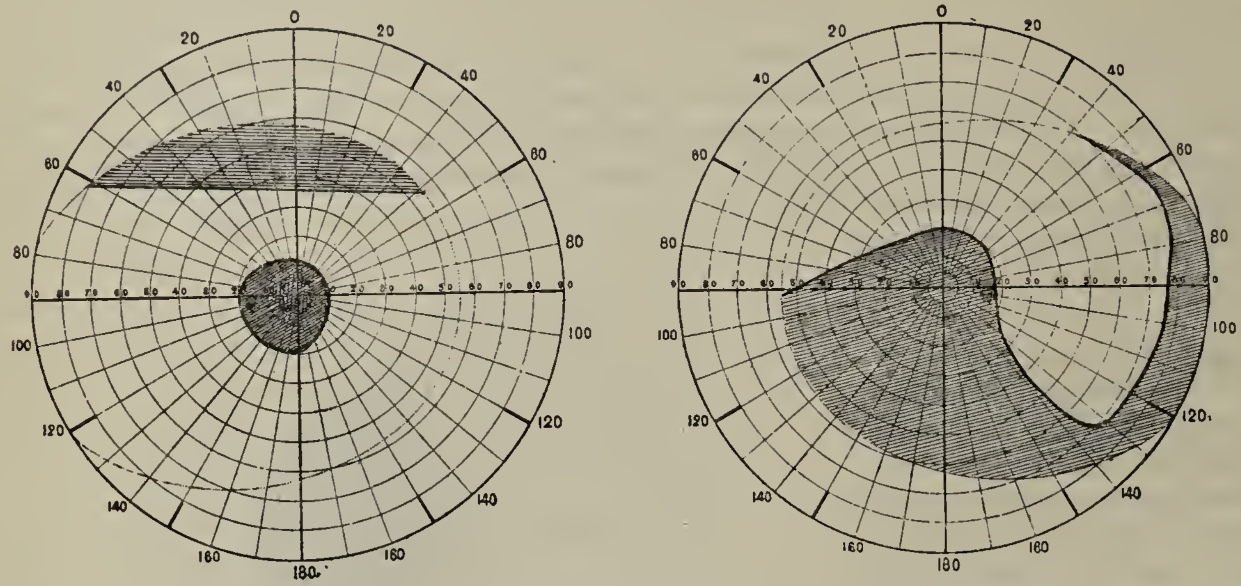


Fig. 2.—Left eye. Case II (D'Eperon).

Case III.—Female, aged forty years. During a severe attack of influenza, accompanied with severe cephalalgia, vision began to fail. The right eye became almost sightless in a single night. Vision of the left eye is failing rapidly. St. Pr.: V. R. E. = 0; V. L. E. = $\frac{4}{10}$. Tension not increased. Field of left eye not contracted. Ophthalmoscopic examination shows atrophy of the right nerve and discoloration of the left. In spite of all treatment, the vision continued to fail in the left eye, and equaled perception of light at the end of three weeks. The patient's general condition was poor. No history of syphilis. No albumin or sugar was present in the urine. No locomotor ataxia.

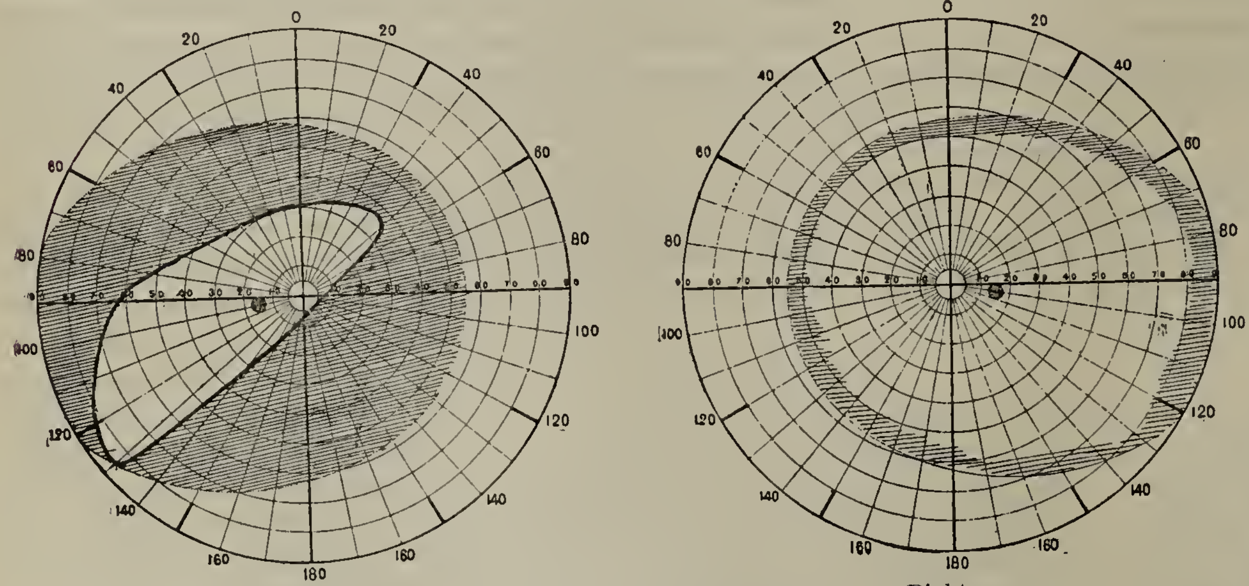
Case IV.—Female, aged nineteen years. A short time before the vision began to fail the patient had suffered from an attack of influenza, accompanied with severe cephalalgia. First examination on July 9th, 1890. St. Pr.: Left eye normal. Right eye, V. = $\frac{2}{10}$; not improved with glasses. Visual field concentrically narrowed. The treatment produced an improvement in vision to $\frac{4}{10}$, which was unchanged three months later. No history of syphilis or other constitutional disease.

Case V.—Male, aged forty years. During an attack of *la grippe*, in which the cephalalgia was intense, the vision began to fail. When seen the vision of the left eye equaled $\frac{1}{100}$. There was a central scotoma and a scotoma of about one third of the upper part of the field (see chart). The vision of the right eye was $\frac{1}{1000}$ (?). The field was free only in an irregular crescentic patch in the upper part (see chart). Central vision was absolutely abolished. Ophthalmoscopic examination showed discoloration of the discs. No history of tabes or syphilis. After some time the vision of the left became somewhat better; that of the right diminished to almost nothing, although the patient was carefully treated.



Left eye. FIG. 3.—Case V (D'Eperon). Right eye.

CASE VI.—Female, aged fifty-four. Came, on account of a diminution of vision, on November 12, 1889; the vision at this time was $\frac{7}{10}$ in each eye. Visual fields normal in extent. Ophthalmoscopic examination disclosed partial atrophy of the optic nerves. The discs were not distinct and there was slight haziness of the retina adjoining them. Some time before this the patient had suffered from a severe hæmorrhage, which was supposed to be intestinal. At this time she was almost blind, but she had gradually recovered to the present degree. Patient returned on July 1, 1890; at this time the vision of the left eye equaled perception of light; of the right eye, $\frac{3}{10}$ (see charts). There was concentric limitation of the visual fields of both eyes. The ophthalmoscopic examination showed pronounced atrophy of the optic disc in the left eye. The right eye remained as when first seen. During the month of January last the patient had suffered from an attack of influenza, accompanied with severe cephalalgia. The vision had failed rapidly at this time. Injections of strychnine were commenced. At the end of twelve days the V. R. E. = $\frac{8}{10}$; V. L. E. = $\frac{1}{100}$. Three weeks later the vision had decreased to $\frac{2}{10}$ in the right and to nothing in the left eye.



Left eye. FIG. 4.—Case VI (D'Eperon). Right eye.

Bergmeister reports two cases:

CASE I.—Male, aged thirty-eight years, had influenza four weeks ago. A rapid diminution in the vision was noticed a few days after the attack began. St. Pr.: Vision, R. E. = perception of light; V. L. E. = $\frac{2}{200}$. Visual fields normal in extent. The ophthalmoscopic examination showed atrophy of the optic nerves, presenting the picture of atrophy after neuritis. The vessels were small, the walls of the arteries being thickened. There was no evidence of any other disease that might have stood in a causative relation.

CASE II.—Female, aged thirty years, had an attack of *la grippe* six weeks ago, which confined her to the bed for a few days and to the house for four weeks. She suffered severely from a left-sided cephalalgia. The vision of the left eye began to fail soon after the attack of influenza began, and progressed rapidly. The patient states that she saw better with her left eye than with her right before her illness. St. Pr.: Vision of the R. E. = 1; L. E. = $\frac{1}{3}$. Patient reads J. 5 with difficulty with the left eye. There is a central scotoma for green and red. Visual field concentrically narrowed.

Ophthalmoscopic Examination.—Right eye normal; left eye, disc pale, arteries small.

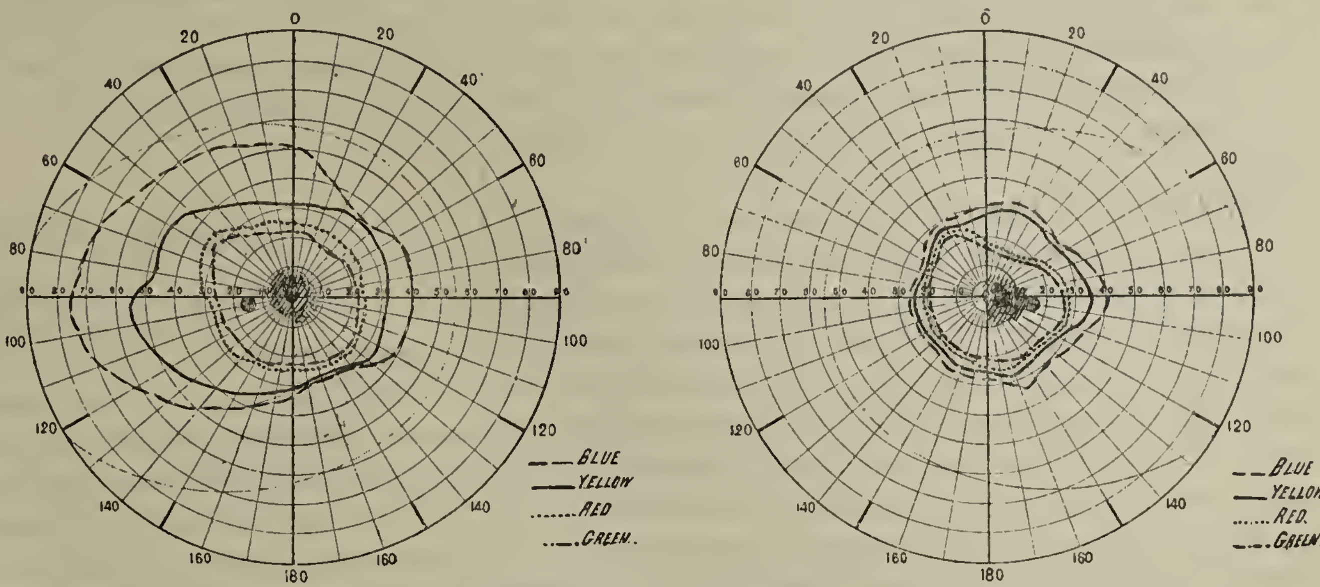
Bergmeister is of the opinion that there might have been some papillitis in the early stage in the last case.

A well-reported and very clear case is that of Hansen (19), and is as follows:

> Female, aged fifty-five years, has always had good health. No systemic disease. Had an attack of *la grippe*, beginning March 20, 1890, severe frontal headache coming on a few days later. The patient was confined to bed for some days. A diminution in the vision was first noticed on April 8th, after which time it failed rapidly, and on April 11th the patient was completely blind. The frontal headache continued for about four weeks, disappearing gradually. The patient claims to have been entirely blind for four weeks, when the vision began to return. Dr. Hansen saw the patient for the first time on May 22d. The condition then was as follows: Media transparent. Refraction emmetropic. Pupils dilated *ad maximum*, not reacting to light or to movements of convergence. Vision equals perception of light in both eyes. Faulty projection. Eccentric fixation. No nystagmus. Impossible to determine the visual fields. The ophthalmoscopic examination shows the discs to be pale, arteries small, veins somewhat enlarged, retina pale. No evidence of inflammation.
>
> *Treatment.*—The iodide of potassium and strychnine were given.
>
> *June 12th.*—Patient can discern large objects.
>
> *July 15th*—The vision equals $\frac{5}{200}$. Discs pale. Vessels normal.
>
> *August 15th.*—Condition unchanged. Eccentric fixation.

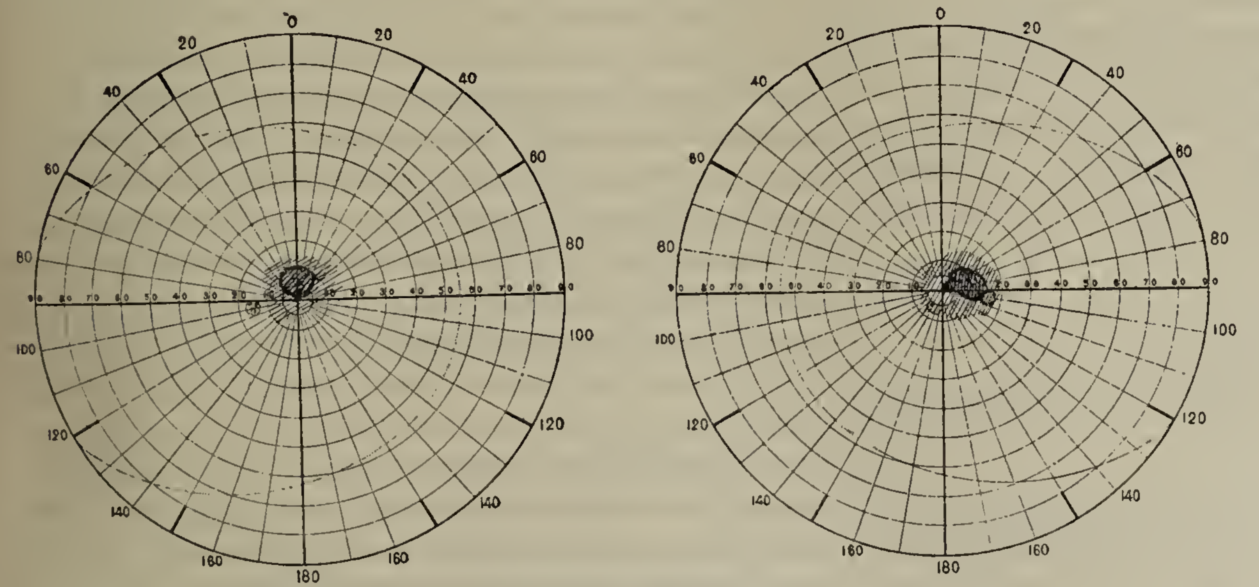
My own case is as follows:

William S., aged twenty-four years, came to my office December 29, 1890, having been sent to me by my friend, Dr. Frank Miller. The patient gave the following history: During the last week of January, 1890, he had suffered from an attack of *la grippe*, which began with coryza and muscle pains, with fever. Three or four days later he experienced severe frontal headache, which compelled him to keep his bed for two or three days. His business called him to Chicago, for which place he started while still very weak. When he reached Chicago, which was seven or eight days after the attack of influenza began, he noticed that his vision was failing. The vision continued to fail until about the middle of March, when it was very much reduced. A slight improvement occurred during the latter part of April, at which time he could read the largest advertisements in the newspapers. Mr. S. consulted oculists in Detroit, Chicago, Milwaukee, New York, and Brooklyn. He was told that his condition was due to the abuse of alcohol and tobacco (which he had used only very moderately), by the oculists whom he first consulted, was advised to stop their use entirely, and was put on the iodide of potassium, mercury, and strychnine. No alcoholic drinks or tobacco were used for three months. During the first half of this time the vision continued to fail; during the last half it improved slightly for part of the time, then dropped to almost its former condition, where it has since remained.



Left eye. Fig. 6.—W. S., April 18, 1891. Right eye.

St. Pr.: Patient well nourished. Vision, R. E. = $\frac{20}{200}$; L. E. = $\frac{10}{200}$. Not improved with glasses. Reads J. 13. Eccentric fixation. Visual fields normal in extent for moving objects. Color fields limited. There is an absolute central scotoma which gradually shades off into the normal eccentric visual fields. The scotoma is irregular and non-symmetrical. The ophthalmoscope shows decided paleness of the discs, much more decided in the temporal halves. No other change can be determined. The pupils react to light rather sluggishly. There was no history of acquired syphilis. No rheumatism. Urine normal.



Left eye. Fig. 5.—W. S., February 3, 1891. Right eye.

Diagnosis.—Retro-bulbar neuritis with *la grippe* as the cause.

Treatment.—Tonics.

February 3, 1891.—The condition is much as when last seen (see charts).

April 18th.—Vision, R. E. = $\frac{20}{200}$; L. E. = $\frac{18}{200}$. Reads J. 11 with difficulty. The charts of the visual fields show a decided improvement as regards the central scotoma, and there is a marked improvement in vision in the left eye.

During the last six months the patient has had tonic treatment, and has used alcohol and tobacco moderately. There is no symptom of tabes or other disease that might have produced the defect of vision.

* Of the fifteen cases of neuritis of the optic nerve, nine occurred in females and six in males, at ages ranging from eighteen to fifty-eight years. There was an inflammatory condition at the disc in four cases; paling of the disc, more or less marked, in eleven cases. One eye was affected in four cases, both eyes in eleven. Blindness (permanent) resulted in one eye in one case, perception of light in two eyes in two cases. Approximately, complete recovery occurred in one case only. The scotomata produced were very varied, affecting all parts of the visual fields. Central scotoma without appreciable limitation of the visual fields occurred in two cases. The scotomata were for *all colors* except in the first case by D'Eperon, in which there was a central scotoma for red and green, and also a concentric limitation of the fields.

The histories of the cases exclude tabes dorsalis, syphilis, and the acute diseases—such as diphtheria, scarlet fever, etc.—as causes, and the only remaining agent that might be argued as a factor in the production of these cases is the abuse of alcohol and tobacco.

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* Added since the paper was read at the N. Y. Academy of Medicine—to next paragraph.

This, I think, may be excluded for the following reasons: 1. The large proportion of females affected and the histories recorded. 2. The character of the scotomata observed. 3. The suddenness of the loss of vision and the uniform history of its occurrence in connection with *la grippe.* 4. The absence of improvement in vision under conditions which so uniformly produce improvement in amblyopia *ex abusu.*

The evidence, I think, is sufficient to warrant our putting *la grippe* in the category of the causes of retro-bulbar neuritis.

Neuritis in other parts of the body from this cause is not unknown. Bidon (20) mentions cases of paralysis of the pneumogastric from the bulb to its terminals followed by palpitation and heart spasm and death in one case from congestion of the lungs. He cites a case by Féréal and one by Laveran of paraplegia with rapid ascending paralysis and death. Also a case by Bennett in which paralysis of the bladder was the first symptom. Death by ascending paralysis followed. Bidon also cites cases of neuritis of the trigeminus and sciatic. Villard and Erlenmeyer report cases of chorea and epilepsy in which *la grippe* was apparently the exciting agent.

From what has preceded we may draw the following conclusions:

1. Neuritis of the optic nerve due to *la grippe* is of relatively rare occurrence; it may affect one or both eyes and may produce partial transient impairment of vision, partial permanent impairment of vision, or absolute permanent blindness.

2. Failure of vision begins from three to fourteen days after the commencement of the attack of *la grippe* and proceeds quite rapidly. It is always preceded by intense frontal or circumorbital cephalalgia.

3. The form of scotoma produced is probably dependent on the position of the neuritis in the course of the nerve from the globe to the chiasm. If immediately behind the globe, the macular fibers are affected; if near the optic foramen, the peripheral fibers suffer first.

4. Treatment has but little effect to promote a cure. If recovery follows, it takes place spontaneously and accompanies improvement in the patient's general condition.

5. The neurites of motor nerve branches resemble those that occur after diphtheria and are mostly of a transient character. They may occur in any or all of the nerve trunks pertaining to the eye.

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CHRONIC PERITONITIS.*

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Chronic peritonitis is a disease presenting a great variety of symptoms, is dependent upon a variety of causes, and exhibits a wide difference in anatomical conditions.

1. It may be a sequel of one or more attacks of acute general peritonitis.

2. It may result from an extension of an acute and recurrent localized peritonitis, marked examples of which may be found in cases of recurrent appendicitis. In the first attack of appendicitis the peritonitis may not extend much beyond the appendix vermiformis, in the second attack it may extend a little farther, and each succeeding attack, if there is no perforation, tends to cause a slight spread of the disease. In all of these recurrent attacks resolution may be very nearly complete, yet the peritonæum be left in a slightly thickened condition and some adhesions be found between contiguous organs, so that the membrane is ready, upon the operation of the slightest cause, to take on a more or less active inflammation.

In that form of pelvic peritonitis due to inflammation of the peritonæum surrounding the uterus, ovaries, and tubes, when the inflammation is characterized by recurrent attacks, sooner or later a more or less general chronic peritonitis will result.

3. A prolific cause of chronic peritonitis is the intermittent or continuous action of a local irritation, such as is produced by a subserous fibroid tumor of the uterus. The rubbing of these hard, irregular tumors against the peritonæum produces a traumatism, frequently resulting in a localized inflammation which spreads to contiguous parts of the membrane. Tubercular deposits, either upon the peritonæum or in the mesentery, have a similar effect. Cancer of various organs of the abdominal cavity, notably the liver and the stomach, not infrequently leads to similar morbid processes.

4. The accumulation in the peritoneal cavity of fluid without any apparent cause may lead to the same results.

5. Since the introduction of electricity into gynæcological practice, we have another cause often inducing chronic peritonitis. How electricity induces peritonitis I do not know. In large doses the current is unquestionably a powerful irritant and very destructive to the vitality of the living tissue. We know something of the polar changes induced, but very little of the interpolar ones. Here is a field for original investigation, worthy of our attention and ex-

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* Read before the Indianapolis Surgical Society, June 3, 1891.

perimentation. Notwithstanding our ignorance upon the questions of how or why, the fact remains, as is attested by many competent observers, that the passage of electric currents of high intensity through the tissues between the uterus and the abdominal walls may not only induce a destructive inflammation of the uterus, but, in rare instances, result in the production of a mild form of peritonitis which tends to persist and leads to widespread adhesions, binding the abdominal viscera together, in some instances leading to suppurative processes.

Every one who has witnessed many post-mortem examinations, or who has done many laparotomies, must have been struck by the variety of pathological conditions present in cases of chronic peritonitis. So great is this variety and so widely different the conditions that it is difficult to accurately describe the morbid anatomy of the lesion. Adhesions binding the organs and tissue together that are invested by peritonæum are almost always present. These adhesions are confined to no specific locality; they may and often do firmly and closely unite the serous coats of the small intestines, the small intestines to the colon, and to the different abdominal and pelvic organs, such as the liver, stomach, and uterus. The agglutination of organs and tissues is often so firm and close as to greatly interfere with the performance of their physiological functions, or may cause the patients much pain. For instance, the normal motions of the stomach may be limited, and thus the digestion of food become impaired; the intestines may become constricted and obstruction of the bowels result. Volvulus and invagination have been attributed to the fixation of one portion of the intestines and the mobility of other portions in an abnormal direction. The adhesions due to perihepatitis may often and do interfere with the normal movement of the liver during respiration. Pain will certainly result, as will also disturbances of the circulation of blood through the organ. If this is long continued, lesions of structure of the organ must be produced. The functions of the bladder and uterus are also frequently impaired by these adhesions.

A thickening of the peritonæum has been frequently observed. This thickening may be slight, so as to be scarcely perceptible, or may have progressed until the membrane at some point has reached the thickness of half an inch or three quarters of an inch. The color, appearance, and condition of the peritonæum are so markedly changed as to be of a dark hue or mottled in appearance. Sometimes the texture is changed to a hard, tough tissue; at other times it is so vascular as to bleed easily and profusely from a slight wound.

"In many cases of chronic peritonitis effusion of some kind is observed." It may be simply serum or sero-sanguineous; it may contain flakes of lymph, or even be purulent. These effusions may be free in the peritoneal cavity or become encysted. Purulent accumulations are most prone to become encysted.

When the peritonitis is due to tuberculosis, the tubercular deposits may be widespread or localized, affecting the parietal portion or the mesentery. The same is true concerning affections inducing chronic peritonitis.

The symptoms of chronic peritonitis are as varied as the pathological conditions. Pain is a constant symptom; but there is no uniformity in the location of the pain in different cases. The writer has more frequently found it in the left side in the inguinal region, extending obliquely upward. His cases have been mostly those dependent upon recurrent pelvic inflammations. If the appendix is the starting point of the inflammation, the pain will start in the right side, between the umbilicus and the anterior superior spinous process of the ilium. Frequently it is located in the suprapubic region. Where there are adhesions of the intestine the pain will be more or less connected with the act of defecation; it will also be influenced by the posture of the patient and the amount and kind of exercise she takes. To be of diagnostic value, the pain must persist in some locality and must be more or less constantly influenced by the condition of the bowels, the posture of the patient, and pressure applied by the examiner. If the inflammation affects chiefly the peritonæum in the upper part of the abdomen, the act of deep respiration will tend to induce pain, and distention of the stomach by food and the normal movements of that organ during digestion will induce discomfort and sometimes pain.

Pyrexia, too, is quite uniformly present, especially if there be an accumulation of pus. Sometimes the elevation of temperature is but slight, and only in the afternoon. The average temperature taken for a number of days is higher than the normal. The bowels are prone to be constipated, but there may be diarrhœa. The normal peristaltic action of the bowels is interfered with; they are adherent, so that frequent distentions of portions of the alimentary canal by gas, and not infrequently an accumulation of fæces at some point in the course of the tract, may occur.

The normal movements of the uterus may be interfered with, so that walking becomes painful, or the act of defecation and the pain attending coitus are intolerable. The function of the bladder, too, is often interfered with, so that frequent painful and forced micturition results.

The physical signs of chronic peritonitis are distention of the abdomen; sometimes this distention is symmetrical, sometimes very asymmetrical. This latter condition is due to adhesions which may mass several loops of intestines together at one point and bind them to the abdominal walls, or there may be partial obstruction of the bowels at one point, so that above the constricting band gas and fæces accumulate, while below the gut is nearly collapsed.

Certainly in such a case marked distention will appear at one point and depression at another. Change of posture does not change the contour of the abdomen much in such cases.

If there is an accumulation of pus or serum, and it is encysted, we shall have the physical signs of a cystic tumor or of an abscess.

In rare cases the intestines and other abdominal organs will be so massed together as to defy the efforts of the most expert to distinguish this condition from an abdominal tumor.

I once opened an abdomen in a case in which three excellent physicians and myself had diagnosticated the presence of a pelvic abscess. We found upon the left side, below the umbilicus and reaching down into the pelvis, a mass composed of agglutinated intestines, the uterus and bladder so closely adherent and so firmly united as to have the feeling and, indeed, somewhat the look of a tumor or an inflammatory mass. There was an indistinct sense of fluctuation, and, to further add to the liability to pronounce this an abscess, the upper portion of the mass was adherent to the abdominal parietes.

Persistent tenderness on pressure is always present.

I have dwelt thus long upon the symptoms of chronic peritonitis because of the difficulty the examiner often experiences in distinguishing this lesion from others, especially from hysterical tympanites, in which there is hyperæsthesia of the abdominal walls and an elevated temperature.

I have seen one mistaken for the other many times by excellent physicians, and have not been exempt from the error myself. Anæsthesia is a valuable aid in diagnosis. Under it hysterical tympanites disappears, as also does the hyperæsthesia, early, while the tenderness due to chronic peritonitis persists until complete anæsthesia occurs.

The same is true of the rigidity of the abdominal walls. If due to hysteria, it quickly disappears under ether narcosis, while if due to inflammation it persists until near complete narcosis. Again, the irregularities in the contour of the abdomen, before mentioned as present in chronic peritonitis, are not affected materially by the anæsthetic, while they entirely disappear if the cause be one of hysteria.

In diagnosticating chronic peritonitis, I insist that the pain in the lesion must possess the characteristics mentioned above—viz., it must persistently affect some one spot (though it may also be general). It must be affected by the posture of the patient or the act of defecation, urination, or respiration. The persistence for several weeks of a slightly abnormal temperature, associated with physical signs already mentioned as characteristic of chronic peritonitis, will aid greatly in the diagnosis. The previous history of an attack of acute peritonitis from which a perfect recovery has not taken place, recurrent attacks of appendicitis, or pelvic peritonitis are all valuable aids. The existence of cancer of some abdominal organ, or of tuberculosis, either general or local, associated with the symptoms of the lesion under discussion, are also valuable in a diagnostic sense.

Recent experiments with tuberculin seem to indicate its efficiency as a diagnostic means in tuberculous peritonitis. In five cases * recently reported, three by Olshausen and two by Fritsch, distinct and marked reaction occurred. Four times regular elevations of temperature of 104° F. occurred, which, however, soon diminished. In the fifth case the reaction consisted only in great frequency of pulse and respiration. The symptoms of local reaction consisted in tension of the abdomen and bloating, of great distention of the belly, and vomiting. In one case it appeared as if the ascites were temporarily increased. Fritsch operated once during this stage of reaction and found the whole peritonæum very red and apparently swollen; very much thickened, as though infiltrated. In several cases there was apparent partial disappearance of the ascites.

Winter,* in summarizing the report of these cases, concludes:

1. Koch's remedy has a highly diagnostic value.
2. General and local reaction occur regularly.
3. Ascites constantly diminishes under the remedy.
4. The constitutional condition is not impaired even during a considerable period of treatment.

Treatment.—The rational treatment of peritonitis must rest upon the causes of the disease, the pathological condition, and the tendency of the disease in each individual case toward either recovery or death. When not associated with or dependent upon either cancer, tuberculosis, or suppurative processes, the tendency of the disease is not toward death, but rather, I think, in most cases toward recovery; hence the proper treatment in these cases will be the expectant one. The utmost vigilance should be exercised in order that active measures may be instituted should the course of the disease demand it.

Iodide of potassium and small doses of mercury have long been reputed to be of value in the treatment of chronic peritonitis. The rationale of their action is not well understood, but they are supposed, especially the iodide of potassium, to be beneficial by reason of their quickening the absorption of the unorganized exudates and by lessening not only the ascites, but the serous infiltration of the peritonæum. The systematic use of quinine is serviceable when a tonic is needed and when the pyrexia has a periodical tendency.

Laxatives may be given in sufficient quantities to keep the bowels active, but purgatives should be avoided. Patients having chronic peritonitis are prone to become confirmed morphine users. By all means avoid this drug except in extreme cases. If a cure is attempted, the patient should be sent to bed and kept there. When the inflammation is localized or more intense in one point, as indicated by greater tenderness on pressure and persistent pain in one region, a cantharides blister will be found markedly beneficial.

A neatly and firmly fitting abdominal bandage gives great relief in many cases. Under this plan of treatment a certain percentage (how great I do not know) of cases will be cured, and in others life will be rendered tolerable.

It is not my purpose to enter into detail as to the surgical treatment of the cases demanding such interference. In the light of my own recent successes, it appears clear to me that the majority of cases of chronic peritonitis can be best dealt with by surgical methods. This is certainly true in instances where acute obstruction of the bowels has been induced, in cases of recurrent appendicitis, where suppurative processes are going on within the abdominal cavity, and in instances of tuberculous peritonitis.

It is not so clear in my mind that surgical procedures should be instituted in cases where the primary operation for the cure of the lesion has not been successful. My experience in secondary operations, though very limited, has not been fortunate, but, by the light of it and the knowledge gained by studying the experience of others, I would say that every other curative means should be employed before reopening the abdomen for the cure of chronic peritonitis. A fortunate and apparently complete recovery of one patient having chronic peritonitis, under the use of small doses of electricity, leads me to hope that in this agent we may have a curative power for properly selected cases. So brilliant have been the results following abdominal section and drainage in tubercular peritonitis that we hail with delight the promised diagnostic aid of tuberculin.

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* *Annals of Gynæcology*, May, 1891, p. 461.

* *Annals of Gynæcology*, May, 1891, p. 462.

Since the first day of last October eight cases of chronic peritonitis have fallen under my observation and treatment. I wish to briefly report them. Four were in hospital and four in private practice.

Case I.—Mrs. A., aged about thirty-five years, has been married many years. Three years ago she had an abdominal section for the removal of the uterine appendages. She was better for a time, then began having attacks of peritonitis. I saw her first at the City Hospital in October last. She was much emaciated; the abdomen was distended and dropsical. She had a ventral hernia and there was great pain in the inguinal region. The bowels were constipated and the stomach much disordered. When in the recumbent position she was compelled to lie continually upon her back. The temperature rose some time each day above normal and there were signs of mental derangement. She was put to bed, counter-irritants were applied over the abdomen, iodide of potassium and tonics were given internally to relieve pain, and sulphonal to induce sleep. No material change in the chronic peritonitis occurred, and her mental disturbances increased until it became necessary to remove her to the insane hospital.

Case II.—Miss C., aged twenty-nine years. A year ago the writer did for her a laparotomy for the removal of a pyosalpinx and diseased ovaries. There were very extensive adhesions, so that one tube was not removed. She has been continually under my observation at the hospital since the operation. Her menstruation came twice monthly and was very painful. This seemed to be the storm-center. She would get up after menstruation and remain up until its reappearance, then become prostrate. So it went on in spite of our most faithful efforts. As it was thought the remaining tube induced menstruation, a secondary laparotomy was done to break up the adhesions and remove the tube. This time we succeeded in removing the tube and in breaking up many adhesions. The abdomen was irrigated and a drainage-tube introduced. The peritonæum was found much thickened, while the uterus and bladder were adherent. It was a case of pronounced chronic peritonitis, not worse than when first operated upon, though quite as severe. The patient died on the third day after the operation, of acute peritonitis.

Case III.—Mrs. C. was operated upon by the writer in June, 1890, for the relief of severe dysmenorrhœa accompanied by melancholia. The ovaries and tubes were found displaced and adherent. We also found that there was parenchymatous inflammation of both ovaries, as well as chronic peritonitis. She recovered well from the operation and seemed for a time much improved – indeed, was entirely relieved of the melancholia.

H. Kelly's operation of ventrofixation of the uterus was done for the relief of the backward displacement of the organ. She was under my observation at the hospital, but left some time in the summer. She came to my office a number of times in the fall and winter. Then she had slight elevation of temperature, tympanites, pain in the abdomen, and every evidence of chronic peritonitis. Among other troubles, she could not sit down without great pain, and every time she sat upon a chair micturition was induced. She asked me to do a secondary operation. I resisted her entreaties for a long time and finally consented, yet put her off so long that she became disgusted and went to another surgeon, who did abdominal section. He found dense adhesions running in every direction in the lower part of the abdomen. The bladder was united to the abdominal walls, as also was the uterus. Intestines were adherent to the uterus and abdominal wall, and the peritonæum was much thickened. The adhesions were severed as far as possible. Some were so vascular as to require ligature. She made an excellent recovery from the effects of the operation. A few days ago she was in my office asking for another operation. My assistant, Mr. Ferguson, examined her and found a large ventral hernia and an abdomen protuberant and irregular in contour. She complains of much pain and disturbance of the stomach, bowels, and bladder. She still has chronic peritonitis and is in a most wretched condition.

Case IV.—Miss D., aged twenty-eight years. Two years ago she had a laparotomy and removal of the tubes and ovaries done by Emmet, of New York. She had had, previous to the operation, several attacks of acute peritonitis, and finally the inflammation became chronic. The appendages were found in a condition justifying an operation. She made an excellent recovery, and began teaching five weeks after the operation. For a few months she seemed nearly well, when she had an attack of subacute peritonitis, followed in a few months by another. Last November she had a third attack, when she first came under my observation. Though quite ill, she had but a slight elevation of temperature. However, she was compelled to remain in bed for six weeks. This attack was subacute or chronic, but so near the border line that it is scarcely possible to say which. There were present the characteristic symptoms heretofore described. The quick pulse and slight elevation of temperature continued after she resumed her work. I had somewhere seen a case reported in which mild currents of electricity relieved the pain and general symptoms of chronic peritonitis. I advised electricity, and began its use in the latter part of December last. She had the current passed once or twice a week. A large abdominal electrode was attached to the negative pole of the galvanic battery, and a carbon vaginal electrode passed behind the uterus, which was attached to the positive pole. Fifteen milliampères ten minutes at first, then twenty milliampères, and finally twenty-five milliampères for ten minutes, were passed. This treatment was continued four months. Marked improvement occurred after the second or third application, and now to all appearances the peritonitis is cured.

Case V.—Mrs. E., aged thirty years. Has had some uterine trouble since a miscarriage seven years ago. In September, 1890, she was taken sick of a chill and fever, pain in the abdomen, and constipated bowels. Various other symptoms were present, and her attending physician, Dr. A. L. Wilson, pronounced her case one of peritonitis. The acute symptoms lasted several weeks, then subsided, but she did not fully recover. I saw her first about the middle of January, 1891, when she stated to me she had had fever every day since September. The day I saw her the temperature reached 102° F. There was evidently chronic peritonitis with what I thought pelvic abscesses. There was a large mass in the right side of the lower portion of the abdomen, the precise character of which I could not make out. I thought it was a tumor or an inflammatory swelling in some way connected with the pelvic abscess. I advised laparotomy for exploration, and, if possible, evacuation of the abscess or removal of the tumor. The laparotomy was done on

January 29, 1891; the peritonæum was found much thickened, the omentum and intestines adherent along the line of incision, so we found some difficulty in entering the abdominal cavity without wounding the intestines.

The mass supposed to be a tumor was found to be made up of coils of intestines matted together and massed in the lower part of the abdomen. Portions of the small intestine, the cæcum, and the uterus were included in the mass. The bladder was adherent to the abdominal parietes above and in front. Bands of adhesions extended in various directions. The peritonæum was so much discolored as to look entirely unlike that membrane. All that could be done was to break up the adhesions as far as possible, irrigate, and drain. All this was done with much patience and care. Many gallons of hot sterilized water were poured into the abdominal cavity and allowed to run out.

The cavity was left full of water and a glass drainage-tube fastened in the lower angle of the wound. When the patient was placed in bed I gave the husband a gloomy prognosis, but she rallied well and went on to a steady recovery. The highest temperature was 100·4° F.—reached on the second day. The drainage-tube was removed in about forty-eight hours. The incision healed quickly and the patient speedily recovered from the effects of the operation. Indeed, she was pronounced out of danger at the end of the third day. No one was more surprised or more gratified at this favorable turn of the case than was the operator. He has recently seen the patient, who says she is in better health than she has been in for years. No pus has ever been seen by the nurse or the patient either in the vaginal or rectal passages, and, as the mass has disappeared from the pelvis, we are compelled to abandon the idea of any pelvic abscess having been present.

CASE VI.—Mrs. F., aged twenty-four years. Pyosalpinx, probably tubercular. Removal of appendages. Chronic peritonitis found. Irrigation and drainage; complete recovery of patient both from effects of operation and chronic peritonitis.

CASE VII.—Mrs. G., colored. Large fibroid tumor of the uterus. Removal of one tube and ovary; the other not found. Diffuse chronic peritonitis. Operated on February 11, 1891. Have seen the patient frequently since the operation. No evidence whatever of peritonitis and the tumor much diminished in size. No drainage was employed, but thorough irrigation with hot sterilized water, and the abdomen was left full of hot water.

CASE VIII.—Mrs. H. Referred by Dr. W. H. Wishard. Operated on May 20th. The patient had been quite sick for some three months. Had pelvic peritonitis and cellulitis. At first there was a very hard mass behind the uterus, inclining the physician to the belief that he was dealing with a case of cancer. It softened a little, and we thought an abscess would form. There was an abnormal temperature and a rapid pulse from the first, though the patient was up and around probably half the time the month preceding the operation. We determined there was a low-grade peritonitis present. Upon opening the abdomen, so many pelvic adhesions were found that it was with considerable difficulty that the appendages were removed. One tube was left behind because it was so firmly united to a coil of intestines. The peritonæum, wherever in view, was much thickened and changed in appearance. There were but few intestinal adhesions, but the omentum was adherent to the parietes and intestines. Thorough irrigation was resorted to and much hot water left in the cavity. No drainage. The patient has so far, now the twentieth day, gone on toward recovery. It is too early to predict what will be the final effects of our efforts upon the chronic peritonitis, but we think it counts for something that the temperature was nearer normal on an average during the first twelve days subsequent to the operation than during the twelve days preceding the section.

Extended comment upon these cases is entirely unnecessary. The study of them has been exceedingly profitable to the writer. They have taught him the value of daily observations of the temperature extending over a period of several weeks if the case is so long under observation. He has learned something of the diagnostic value of pain when described as in the beginning of this paper.

These cases show how frequently the inflammation begins in the pelvis and spreads upward. They also clearly show that every woman who submits to a laparotomy is not cured of every ache and pain she is heir to, even if the appendages are removed.

Four of the eight patients had chronic peritonitis after laparotomy. The history of the first one I could not learn. Two of them were no worse after laparotomy, but they were no better. The fourth one carried with her beyond the operation peritonitis, but it was much less severe than before. In three cases in which abdominal section with irrigation was done an apparent cure resulted. It gives good promise of cure in a fourth case.

Electricity had a most favorable effect in one case. I shall try again when the right case presents itself—*i. e.*, one in which there is a low grade of inflammation and no suspicion of pus in the pelvis or any abdominal organs.

THEORIES OF RESPIRATION.

By S. J. MELTZER, M. D.

I DESIRE to make the following few remarks concerning the article Cause of Respiration, which appeared in the *Journal* for June 6, 1891:

There are at present three theories as to the source of the normal activity of the respiratory center: 1. That both inspiration and expiration are of central origin, the center (or the centers, inspiratory and expiratory) being stimulated either by the presence of the carbonic-acid gas (L. Traube), or by the absence of oxygen (I. Rosenthal), or by both (Pfluger and others), or that the inspiratory center is stimulated by the diminution of oxygen, and the expiratory center by the accumulation of carbonic acid (Bernstein). 2. That the respiratory centers are normally stimulated, mainly or exclusively, by reflexes from the lungs, the collapse of the lungs stimulating the afferent inspiratory nerves and the expansion stimulating the inhibitory nerves of inspiration (Hering and Breuer). 3. A combination of both: the expiration is produced by reflex (expansion of the lungs), and the inspiration is of central origin (J. Gad). Each of these theories is well supported by experimental facts and has its followers; the majority of the writers, however, seem to be inclined to accept another combination of the first two theories—*i. e.*, that the centers for inspiration and expiration are normally stimulated by the blood as well as by reflex. We meet this position in the text-books of Foster, Landois, and others.

In December, 1889, at the annual meeting of the American Physiological Society, I made a preliminary communication* of some results I had arrived at by electrical stimulation of the vagus trunk. I found that strong stimulation of the nerve trunk produced constantly an expiratory standstill during the stimulation, and that after interrupting the stimulation a strong inspiratory after-effect followed. I explained this phenomenon by the assumption that the antagonistic respiratory nerves which were stimulated simultaneously in the vagus trunk behaved like the antagonistic cardiac nerves—*i. e.*, that while stimulation continued, the effect of the inhibitory nerves prevailed, but after the cessation of the stimulation the long after-effect of the inspiratory nerves appeared unrestrained. This conception of the mutual relation of the antagonistic nerves I ventured to apply to the normal working of the nerves in the lungs themselves; the more so, as H. Head has seen the inspiratory "negative after-effect" after prolonged expansion of the lungs, similar to my experience with the vagus trunk. I therefore made the suggestion that the participation of the reflex act of the expansion of the lungs in the respiratory mechanism might occur as follows: The expansion of the lungs stimulates simultaneously both antagonistic nerves, but the effect of inhibition prevails during the stimulation, while the after-effect of the inspiratory nerves appears after cessation of the stimulation and thus gives rise to an inspiration and another stimulation.

This suggestion brought forward a somewhat passionate criticism from Dr. Cowl,† a pupil of Gad's; but, instead of saying something about my theory proper—*i. e.*, the application of the relations of the cardiac nerves to the respiratory mechanism—Dr. Cowl attacked the general ground of my theory—*i. e.*, that the inspiration may be normally of peripheral origin, because this assumption differs from the theory of Gad, which Cowl considered as the final and only true one. To prove that the inspiration would not be of peripheral origin, Cowl cited the experiments of some authors (a small portion of the vast literature) which demonstrate the high sensitiveness of the respiratory center to the changes of the constituents of the blood. As I did not say that the respiration was of peripheral origin *only*, I could not then and can not now see how those experiments could prove anything against my position; they prove that the blood stimulates the center, but they do not show in any degree that the inspiratory center is normally not stimulated by reflex action also. I may hold the position of the majority of the writers, that both centers are normally stimulated in both ways—by the blood and by reflex. My position and the position of many other writers would only be shaken by an experiment which would show that the centers were stimulated by the blood alone. Thus I remarked in my reply:‡ Does Dr. Cowl know of any experiment which shows that the blood, and that alone, is the exciting cause of respiration? To every unprejudiced reader the meaning of this remark ought to be quite clear; for Dr. Cowl, however, the "general terms" and "vagueness" of this interrogation appeared a good opportunity to write another fulminant article,* citing a few more authors, quoting some of them freely, consulting even a small portion of the vast literature on the problem of the first respiration in the new-born. Did he now bring forward any experiments which tend to show that the blood alone is the cause of the respiration, and that the reflexes from the lungs do not participate in the normal breathing? By no means! All the adduced testimony may show indeed that the venous blood causes respiration, but does not exclude the participation of other factors. Dr. Cowl says that he refuses "to entertain speculation as to whether sensorial impressions may in any way be concerned in this regulation"; this is to him "*a priori* improbable," but we need not mind so much what is *a priori* improbable to Dr. Cowl so long as it seems to be very probable to such eminent physiologists as Hering, Gad, and others. I mention Gad, too, because what Cowl says concerning the improbability of the participation of the reflex action in normal respiration covers inspiration as well as expiration, while Gad takes the radical position that expiration is of peripheral origin only, the expiratory centers not being affected by the blood at all. Indeed, it is a striking feature of Dr. Cowl's second article—in contrast to the first one—that we meet all through it with the simple defense of the central origin of the *re*spiration, not mentioning even once that only the *in*spiration is meant by it. If, however, Cowl had followed up his own material more closely and with less prejudice, he would have found facts that speak for the participation of the reflex acts in the normal breathing. He cites, for instance, Rosenthal's repetition of Rach's experiments and says that Rosenthal's statement has been confirmed by other authors. I do not know of any such author, but I do know that Marckwald (monograph,† page 55) states expressly that he repeated the said experiment many times, and that he found Rosenthal's statement to be incorrect, which Marckwald explains by the incompleteness of severance of the medulla oblongata in Rosenthal's experiments. But, aside from that, Rosenthal‡ himself states that after the division of the vagi, medulla spinalis, and oblongata (above the respiratory center), the respiration sank from 14 to 6 in fifteen seconds, and in consequence of this Rosenthal admits that there may be a reflex influence on the respiratory center besides the influence of the blood.

Concerning Cowl's polemic discussion of the experiments of Volkmann and Marckwald I should say very little, as I have not cited them to sustain my position, but to show that, while on one side there is no author who brought forward experiments showing the positive exclusion of the reflex, there are some authors who report experiments tending to demonstrate the possibility of breathing without blood. As for myself, I said expressly that I was not a party to either side, neither do I need those experiments for my theory, nor do I identify my position with the different conclusions rendered by the above-mentioned authors. Still, Cowl says that "Marckwald and also Meltzer seem not to perceive that excitants of the respiratory center are necessarily still present in its tissue," etc. It ought to be clear to every reader that there was no occasion to mention my name in this combination; as to Marckwald, it is sufficient to quote his nineteenth thesis (monograph, p. 120): "Die im Athemcentrum selbst wirksamen Reize sind möglicherweise gleicher Natur, wie die das isolirte Herz erregenden, *vielleicht Zersetzungsproducte der intercellularen Substanz.*"

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* This Journal for January 18, 1890.

† This Journal for September 6, 1890.

‡ This Journal for November 22, 1890.

* This Journal for June 6, 1891.

† *Zeitschrift für Biologie*, 1886.

‡ Not in his classical book, *Die Athembewegungen*, etc., as cited by Cowl, but in Reichert's u. Du Bois-Reymond's *Archiv*, 1865.

By the way, the said experiment of Volkmann and Marckwald has been lately repeated and confirmed by G. Henricius (Ueber dem ersten Athemzug, *Zeitschrift für Biologie*, Bd. xxvi), where Dr. Cowl could find an instance of how the problem of the first respiration is thoroughly discussed and without partisanship.

In connection with the discussion of Volkmann's experiment Dr. Cowl makes the following peculiar remark: Because Volkmann drew the conclusion from his experiment that an involuntary respiratory effort can take place without the accessory action of the vagus, Dr. Cowl says: "Indeed, it would seem as though Dr. Meltzer, by citation of this experiment, wished to express his present coincidence with its express teaching, for he makes no objection to Volkmann's immediate conclusion," and, in speaking of my theory, he adds: "If he still holds that theory." To say the least, these remarks were certainly not made *bona fide.*

There is another characteristic remark in Cowl's second paper. I have stated that the inspiratory after-effect could not be explained by dyspnœa produced by the standstill of the respiration, because the after-effect is in proportion only to the intensity of the stimulation, and not to the duration of the standstill, which would have certainly been the case if the after-effect were the result of the standstill. Furthermore, we never see an inspiratory after-effect after the long expiratory standstill, which may be affected by the stimulation of the superior laryngeal nerve. Does Dr. Cowl show that these points are wrong? No, he does not discuss them at all; he simply says: "I believe, nevertheless, that this after-effect was dyspnœic." He holds the opinion that the fatigue of the inhibitory mechanism, together with the increased excitants in the blood, are at the bottom of the inspiratory after-effect. But the same factors are present when the superior laryngeal nerve is intensely stimulated. Why do we not see there any inspiratory after-effect? But it is a fruitless discussion, and I do not propose to participate in it any further.

Treatment of Enuresis.—"Dr. Sanger, of Leipsic, recommends a course of systematic dilatation of the urethra in cases of enuresis both in women and female children. His plan is to introduce a metal catheter well into the bladder, keeping the thumb over the aperture. The instrument is then firmly pressed backward and to each side from eight to a dozen times. It is, of course, useless to make any pressure anteriorly, as the pubes lies immediately in front. Ten or twelve sittings are usually sufficient. During the treatment the patient is desired to control the sphincter as much as possible by means of the will, to take but little to drink, and to keep the abdomen warm. The good effects of this mechanical system of treatment are to be ascribed to increased power gained by the sphincter in consequence of its contractions after dilatation and stimulation. This method is useful where the paralysis is of central as well as where it is of peripheral origin. Where, however, the neck of the bladder and the whole urethra are of very large caliber, it is useless, and in such cases a plastic operation is required."—*Lancet.*

ABDOMINAL TUMORS, AND CONDITIONS SIMULATING THE SAME, WITH ANOMALOUS FEATURES.

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THE well-known difficulties attending the diagnosis of abdominal tumors are largely due to anomalous conditions, for I opine that in the hands of reasonably well-informed, experienced, and careful surgeons very few mistakes would be made if it were only a question of diagnosis between a typical uncomplicated ovarian tumor, a parovarian cyst, and a uterine fibroid. When in addition to this the history and tendencies of these various anomalies, their peculiarities, and the best mode of dealing with them are taken into consideration, their investigation becomes a matter of added importance. In diagnosticating intra-abdominal conditions, it is not only necessary that the surgeon should have a clear conception of the characteristics peculiar to each of the more common abdominal tumors and conditions which give rise to abdominal enlargements, but he should know where and how to look for the various organs located in that and the pelvic cavities, and be expert in mapping them out. Not only this, but in all cases of doubt he should put this knowledge into practice.

He should, if possible, map out the uterus, the ovaries, the intestines, the liver, the spleen, and the stomach, and determine whether they are in their proper positions, their size, their shape, and their relationship to the supposed tumor. It is the negligence of this precaution that leads good men into some of the most atrocious and inexcusable blunders, and it is the observance of this that gives some men the advantage over others and secures for them the reputation of being safe and shrewd diagnosticians.

CASE I. *Conglomerate Agglutination of the Intestines, the Result of Peritonitis.*—The first case I report was in no sense one of tumor or growth, and to the practised abdominal surgeon would offer no impediment to ready diagnosis, but to others, as I have reason to know, it is liable to prove a stumbling-block.

The patient was a woman, about fifty years of age. Of her previous history I know little, except that she had been ailing for a long time. Dr. H., a surgeon of repute, had been called to her on account of a supposed abdominal tumor. After many careful examinations he asked me to see the case with him. Surely enough, there was a distinct nodular, rounded mass of considerable size occupying the abdomen centrally. Through the lax abdominal parietes it could be made out with perfect distinctness. It seemed to the touch partly solid and partly cystic, and was slightly movable. The doctor said he had been unable to trace its connection with any organ, and that the uterus was normal for a woman of her age. Of his methods of examination I know nothing, but, as he was a man of large experience in general surgery, well informed, and painstaking, I doubt not he had examined the case methodically. My first impression when I laid my hands on the supposed tumor was that it consisted of a clump of intestines drawn together and infiltrated as the result of an old peritonitis. By percussion over the mass, the supposed cystic parts were found to be resonant, which, taken in conjunction with other palpable signs, made the case a plain one. At the first suggestion the doctor immediately recognized the state of affairs and gave his unqualified assent to the diagnosis. Some time subsequently a post-mortem examination confirmed this.

CASE II. *Peritoneal Effusion with Peculiar Disposition of Intestines.*—On another occasion I was present and assisted in an operation in which this same surgeon opened the abdomen, only to find the intestines matted together in the shape of a horseshoe, with the arch toward the diaphragm, and a circumscribed peritoneal effusion occupying the central and lower part of the abdomen. Here were conditions well calculated to deceive, as the distinct wave impulse and dullness over the site of effusion, the dome-like prominence of the abdomen, the unchangeable position of the effusion with postural change, and the corona of resonance, simulated a cystic tumor closely. The patient, being a foreigner of low grade of intelligence and with little knowledge of English, could not, or would not, give any history that in any manner assisted the diagnosis.

CASE III. *Cysto-sarcoma of the Uterus and Broad Ligaments.*—This was in a woman, aged fifty-three, sent to St. Francis Hospital for supposed ovarian tumor. Referring to my notes, which do not include the history of the case, I find the following: She is about as large as at full term of pregnancy; abdominal walls thick; tumorous mass, apparently cystic, extends to just above the umbilicus. There is also fluid in the peritoneal cavity. Impulse waves very confusing. Contour of tumor somewhat irregular, with slightly increased prominence toward the right lateral half of abdomen, but thickness of walls prevents satisfactory palpation. Uterus measures two inches and a half, is slightly anteverted and fixed. Nothing definite can be made out *per vaginam*. No diagnosis was attempted, but a malignant condition was suspected because of the age of the patient, the irregular contour of the tumor, and the ascites. An exploratory incision was made, and on opening the peritonæum a large quantity of fluid escaped. On introducing the finger, I found two large cysts lying side by side, the right being the larger. Somewhat lower were three other cysts of about the size of oranges, and still lower in the pelvis innumerable smaller ones, ranged along the posterior aspect of the broad ligaments and uterus. The cysts were variable in size, and a number of the smaller ones ruptured under the finger. The larger cysts sprang from the fundus and posterior aspect of the uterus and broad ligaments by thick, fleshy pedicles from a thick, cactus-like stalk. The pedicles, while dense, gave the impression of friability, and in several places broke down under the pressure of the finger. Feeling that their removal would be fraught with great immediate danger and not conducive to the future welfare of the patient, the abdomen was irrigated, sponged, and closed up. She made a slow recovery and was discharged, but returned a few months later to die in the hospital. No post-mortem was allowed.

At the time, being very busy, I did not look up the literature on the subject while the case was fresh in my mind, and must confess that I have made no exhaustive search since, yet I am inclined to regard this as a unique case. I put it down as a cysto-sarcoma, affecting chiefly the broad ligaments, as the pedicles were gnarled and twisted about the uterus, overlapping it from either side, but springing mainly from the ligaments. It would, of course, be more reasonable to suppose that the disease had commenced in the uterus and extended laterally in both directions, as it is hardly to be supposed that two foci of morbid action would become established independently and simultaneously in the right and left broad ligaments.

CASE IV. *Dermoid Cyst discharging through the Uterus.*—As I have no notes of this case I shall have to report it altogether from memory. The patient was about thirty years of age. On her applying to me for treatment, I discovered on examination a mass to the right of and somewhat posterior to the uterus, high up. While it was palpably distinct from the uterus, the contour of each being made out separately with a sulcus between, yet any considerable motion imparted to one was communicated to the other. The uterus was of normal size, but was careened to the left. The mass was of about half the size of the fœtal head, not very tense, of somewhat irregular outline, and apparently partly cystic and partly solid. Its character changed from time to time, so that at one time the cystic and at another the solid element seemed to predominate. It was not very sensitive. My first impression was to regard it as a dermoid cyst, but, as the woman had been sterile for about eleven years, had of late been irregular in her menstruation, had colicky pains and a bloody discharge from the uterus, I was somewhat fearful of extra-uterine pregnancy. I advised an exploratory abdominal incision, to which she consented, only asking time, that she might complete some necessary arrangements. This was delayed from time to time for weeks, during which there was a gradual, but not very marked, increase in the size of the tumor. The patient, being a lady of strong religious tendencies, and naturally dreading operative interference, gave herself over to fasting and prayer, that she might be relieved from the ordeal. For several weeks she ceased to call on me, and I supposed she had gone elsewhere, when one day she made her appearance, looking pale and wan, and announced that she had passed through a very sick spell, during which a large quantity of greenish fluid, containing hair, flakes, and membrane, had passed *per vaginam*. I do not now remember whether she had uterine pains accompanying the discharge or not. I found the tumor greatly diminished in size, having lost its cystic character and presenting a flattened, plaque-like contour. At several times after this the cyst partially filled, and the contents discharged as before, the tumor meantime progressively diminishing in size.

As these discharges always took place in the intervals of the patient's calls and as she would absent herself until they ceased, I had no opportunity of verifying her statement or of determining the avenue by which they came. I have perfect confidence in the patient's truthfulness; besides, the collapsed condition of the tumor left no doubt that the cystic contents had been discharged. A careful examination of the vagina failed to reveal any tract or sinus, and the only legitimate conclusion was that the discharge took place through the uterus.

Only once after one of these spells did I discover some of the greenish fluid in the vagina, but did not see it exuding from the uterus. Sounding the uterus failed to reveal any abnormal opening, and, as she complained of no bladder trouble, I am persuaded that none came by that way. Hence I conclude that the channel of communication between the cyst and the uterus was a natural one, and not the result of ulceration. In other words, the cyst was probably developed in, and discharged through, the right Falloppian tube. Assuming that this was a dermoid cyst (and when we take into consideration the character of the discharge, the sebaceous flakes, the hair, and the membrane, no other view seems tenable), the most interesting phase of the subject is, How came it to discharge through the uterus? Taking the view that a dermoid cyst is an erratic development of an unfecundated ovum, Tait speculates as to what might be the result should an ovum find its way into the uterus where conditions are favorable to its normal growth.

If I understand him aright, he thinks it possible that, under such circumstances, a perfect embryonic formation would result, a natural development would ensue, and a being be brought into the world anomalous in that it had never received the benefits of the male element in fecundation.

It may be that I am carrying this line of thought much further than Mr. Tait intended to, but the logical conclusion of the whole matter is that if a perfect embryonic formation is possible, then a perfect fœtal development also; and if a perfect fœtal development, then what is there to exclude animal life? If this cyst was developed in the Falloppian tube, as seems quite probable, how nearly this case came to furnishing the conditions for demonstrating Tait's hypothesis! And if so, who knows but the world has seen instances of the kind unawares? History is not wanting in instances in which women stoutly maintaining their virginity have brought forth offspring. It is a wild thought, but is it not barely possible, in the light of the foregoing, that in some instances the woman told the truth? The subject of parthenogenesis is full of mysteries, and has not by any means been traced to the ultimate on all lines. Pursuing the subject still further, who knows but some of the blighted ova that go under the head of uterine moles may be instances of this kind? The subject will bear thought, and possibly even now we are on the threshold of important revelations.

Case V. *Ovarian Tumor encapsuled.*—This is one of those cases illustrative of the fact that we sometimes are unable to make a diagnosis until well into an operation, or until after the operation is completed, when, with the tumor in our hands, a scrutinizing examination reveals the true nature of the case. The patient, aged fifty-seven, had noticed the growth about five years ago, at which time it had attained to considerable size. Since then she had been treated by several physicians for abdominal dropsy, but never tapped. Finally, a few weeks since, Dr. Alderman, of Athens, being called to see the case, recognized its tumorous character and advised an operation. As the patient was greatly reduced and failing rapidly, arrangements were immediately made, and I was called to operate at her home in Athens County, Ohio. Arriving at the place and only having two hours between trains, I immediately made an examination while the preparations for operation were going on. I found the abdomen immensely distended and all the external signs of a cystic tumor. On making a vaginal examination, I found quite a large cystocele and the cervix crowded toward the pubes. The sound entered the uterus over five inches. By insinuating the finger between the cervix and pubes a hard, bony substance could be felt, which I could liken to nothing but the inferior maxillary bone of an infant. The anterior and upward displacement of the uterus suggested an intraligamentary growth, while the great depth of the uterus and the length of time which the disease had lasted suggested a fibrocystic growth of the uterus. I advised the patient of my doubts and of the probable difficulties and dangers in the way of an operation, but she insisted that we go on, and we soon had her on the table and etherized. On making the abdominal incision, I came upon what at first sight appeared to be a fibrocyst, as the tumor presented a dark-red and vascular appearance. Adhesions were universal and dense, and, after making some headway, I came to a place, about eight inches to the left of the median line, where I could not further effect separation from the abdominal walls. I now worked in various directions, and finally extended the incision upward. Here, to my surprise, I came upon the pearly, shining surface of the typical ovarian tumor, and was able to separate the thin, vascular capsule which embraced it as the ocular conjunctiva does the eye While little progress could be made by the fingers, I found that, after getting a start and making the parts tense by traction on the capsular membrane in one direction and the cyst wall in another, it could be quite readily peeled off by means of a sponge.

I was now quite sure that it was an intraligamentary cyst. But as I neared the base of the tumor the capsular membrane suddenly disappeared and I came upon a conglomeration of cysts, some of which were quite hard, and in the midst of these a well-formed pedicle. The tumor was removed and estimated at thirty-five pounds. The operation lasted forty-five minutes. In the confusion incident to the kaleidoscopic appearances of the cyst at different stages of the operation and the anxiety to catch the next train, I forgot to investigate the nature of the hard body felt behind the pubic bone *per vaginam*. As to the capsule of the tumor, I doubt not it was of inflammatory origin, but its remarkable vascularity and manner of distribution make it noteworthy. The patient recovered promptly, the highest pulse-rate being 86, and the temperature never reaching the fever point.

Case VI. *Enormous Encapsuled Suppurating Hæmatocele.*—I have more hesitancy in reporting this case than any of the preceding, for the threefold reason that my notes are meager, the attending physician is beyond reach, and I failed to arrive at a diagnosis even after operating. The patient was a lady perhaps thirty-five years of age, who had never borne children, but had been the victim of uterine or circumuterine trouble for a long time. Her general health as I understand was fair. Under the care of her attending physician, Dr. G. G. Kyle, she had markedly improved, one of the last measures being the constant electric current. I think the doctor told me that she bore the electricity badly, and that the last séance, in which a strong current was used, was followed by much disturbance. At about this time, while in the midst of house-cleaning, she was taken suddenly ill and was put to bed. Some time thereafter a large abdominal tumor was discovered which extended above the umbilicus. This was accompanied by the usual signs of perimetric inflammation. There was no history of a primary shock or collapse, but a febrile condition existed from the first. When the doctor first opened correspondence with me, the patient was having chills and sweats, with a fluctuating temperature and a pulse-rate gradually augmenting until it ranged from 120 to 140. As she was rapidly losing ground, I was called to see her at her home in Granville, Ohio. I found her alarmingly prostrated, and it was our opinion that unless speedily relieved she could not survive many hours. Examination revealed a large, round, smooth tumor occupying the abdominal cavity and extending above the umbilicus. It was apparently solid. The patient had vomiting and diarrhœa, with constant eructations of gas. She was also tympanitic and complained of much pain. She had a hectic flush on the cheeks, and the pulse was running at 140, small and hard. The temperature was 103°. The abdomen was tender. Examination *per vaginam* showed the uterus somewhat depressed and immovable, and the vault hard, as in localized peritonitis. A sound entered the uterus two inches and a half. As suppuration was evidently going on somewhere and was presumably connected with the abdominal mass, we decided that the only thing to do was to make an exploratory abdominal incision and relieve her if possible. Accordingly, after hasty preparation, the patient was etherized and placed on the table, and the usual incision made. Coming upon the face of the tumor, it presented a light-grayish aspect and was adherent to the abdominal walls. Enlarging the incision, an attempt was made to free it, in which I made good progress until I reached the vicinity of the pelvis over the great vessels, where I met with so much opposition that the doctor begged me to desist. I now decided to explore the interior of the mass, and, upon cutting into it, found it to consist of a dark-red, somewhat dense, and tough material, very like suggillated muscular tissue.

Entering to the depth of an inch or more, I came upon a depot of purulent matter, of which there must have been two or three quarts. This was washed out, the edges of the incision were stitched to the edges of the abdominal wound, a drainage-tube was inserted, and the wound was closed. She made a protracted but perfect recovery.

I regarded this at the time and for some time afterward as an inflammatory exudation, and yet could hardly believe an exudation of such magnitude possible. I now believe it to have been a hæmatocele concurrent with a peritonitis, in which the elements and products of the two conditions were blended, giving rise to the complex symptomatology and character of the abdominal mass.

I have several other cases of interest in this line which I had intended to incorporate in this report, but, as the paper has already grown to undue proportions, I shall merely allude to two or three more.

Case VII.—In this a pelvic growth came on coincidently with pregnancy and for several months kept pace with the uterine growth and eventually compelled me to perform the Cæsarean operation. Neither at the time nor since have I been able to determine the nature of this growth, which subsided somewhat after delivery, but is now gradually increasing; but, as I am keeping the patient under observation, I hope some time to be able to do so.

Case VIII.—This is a patient on whom I was called to perform an ovariotomy in Knox County, O. The interior of the cyst was studded with small cysts of uniform size. These latter are suggestive of distended ovisacs, but the manner of distribution and the age of the patient (sixty) militate against this view. I made no critical examination.

Since writing the foregoing I have fallen upon another case that is at once so unique and instructive that I can not refrain from introducing it here, even at the expense of carrying this paper beyond the limits that I had prescribed.

Case IX. *Tubercular Peritonitis, with Circumscribed Effusion, capped by a Displaced and Enlarged Spleen*—Mary W., aged eighteen, single, consulted me for womb trouble and rapidy increasing debility. She was tall and somewhat emaciated, but strikingly beautiful despite the emaciation. She had a hectic fever, no appetite, a sense of great prostration, abdominal pains, and a pulse of 120. The large, luminous eyes and the flushed cheeks were ominously prophetic. I noticed a degree of dyspnœa that was out of proportion to her other symptoms, and, upon examination, found miliary infiltration of both lungs. Upon laying my hand on the abdomen, I found it distended and hard. The pelvic organs were depressed, the uterus being evidently crowded down from above. The physical signs were those of an abdominal tumor, extending from the pelvis to above the umbilicus. To the hand it gave the impression of solidity. There was dullness over this region, but above and at the sides the percussion note was distinctly resonant. Change of posture made no change in the dull area, and the tumor was distinctly defined. There was evidently fluid beneath the solid, for a wave impulse could be recognized, though indistinctly. I suspected tubercular peritonitis, but was at a loss to account for the regular, smooth, solid mass just under the abdominal walls. Percussion of the liver showed it to be in position and in no way connected with the tumor. So, also, there was a hand's breadth between the region of the spleen and the tumor. I neglected to locate the spleen. I suggested an exploratory incision, but at the same time gave her family to understand that the chances for helping her were extremely uncertain, and that, in her greatly debilitated condition, she might die on the table. However, it was evident that she could not survive many days, as every twenty-four hours made marked and painful changes in her condition. Should there be a purulent accumulation, as the hectic, rapid pulse, drenching sweats, and great prostration might also indicate (although I rather attributed them to tuberculosis), there was a chance that timely interference might save her. The suggestion was eagerly accepted by the patient and her friends. Accordingly, on the second day after this interview, I proceeded to open the abdomen in the presence of Dr. Hoover, Dr. Warner, Dr. Frame, Dr. Clarke, and Dr. E. M. Gilliam. I immediately came upon a smooth, rounded body that resembled the liver or spleen, which was firmly adherent everywhere. That it was not the liver was plainly evident, as the liver could be mapped out in its usual situation. In order to satisfy ourselves on the other score, I broke up the adhesions in the direction of the spleen, and, on inserting my fingers, found that it was absent from its usual site. I now cruised around the edge of the organ, and found it to be discoid in shape and about eight to ten inches in diameter. The spleen, greatly enlarged, had left its moorings and slid downward, taking the position indicated. During my manipulations quite a large quantity of fluid was liberated from beneath the spleen and gushed out. The intestines were agglutinated, and formed columns upon which the spleen rested, and within which was contained the fluid. The spleen being torn at the margin, a wedge-shaped piece was excised for microscopical examination, and the rent closed by continuous suture.

The parts were very vascular and bled freely. It is hardly necessary to say that it was a case of tubercular peritonitis, with involvement and displacement of the spleen, the effusion being circumscribed by the peculiar disposition of the intestines, the spleen, and plastic exudation.

This case illustrates in a striking manner the necessity of close interrogation of all the abdominal and pelvic organs in our attempts at diagnosis of abdominal tumors. Had I been more careful to locate the spleen before cutting, I might at least have formed a better conception of the conditions existing in this case, although it would not have obviated the necessity of an exploration to determine the nature of the fluid.

THE CAUSATION AND TREATMENT OF CERTAIN FORMS OF HEADACHE.*

By J. A. WESSINGER, M. D.,
HOWELL, MICH.

As the title of the paper implies, it is not the intention of the writer to consider in detail all the various pains in and about the head that are usually denominated headaches, but rather to direct attention to certain special varieties of this difficulty, accompanied by certain definite and tangible causes, and relieved only by treatment evolved and formulated from a careful consideration of these causes and their *modus operandi*. For the purpose of permiting a more systematic study of the subject, I have chosen three general heads under which to treat the matter in hand.

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* Read before the Michigan State Medical Society, June 11, 1891.

1. Eye-strain—its attending phenomena and treatment.
2. Derangements peculiar to young women and girls at puberty.
3. Headaches common to young children—their cause and remedy.

In dealing with this question I have left out of consideration all those derangements of the digestive tract which we all are familiar with, and which of course play an important part in the causation of headaches. But the fact that a "bad" stomach will make the head ache should not lead one into the error of supposing that every painful head is the result of disordered digestion. Now, then, the question of eye-strain: What is it, and how shall we recognize it? Rather concisely stated, I think we can say that eye-strain is nervous and muscular tire owing to improper co-ordination within the orbit. I have no desire at this time to enter into a lengthy discussion as to just how pain is produced when there exists a disturbed equilibrium between one set or two sets of muscles of the eye. Neither do I go so far as some, and say that what we know as eye strain produces epilepsy and the allied nervous disorders. But I do know that there is such a thing as eye-strain, and if you fail to recognize it you fail to relieve your patient. Now, then, take an illustrative case: A young lady comes to you complaining of severe and continued headache. You inquire into the condition of the digestive tract and find it correct. You find the menstrual function well performed, the kidneys active and normal. On inquiry, you find no predisposition to nervous disease, but you do find this headache, and you will also find that she has been under the influence of endless remedies, with no benefit. On further inquiry you find that the young lady is fond of literature, and has been in the habit of reading with the aid of artificial light, and of late is troubled with the lines running together so that the page blurs. You examine the eye and find an irregularly curved cornea, causing distortion of images on the retina. In other words, you find astigmatism; or she is the subject of hypermetropia, causing an imperfect focus of objects. Or she may be myopic, producing the same state of things. Finally, we say she is the subject of errors of refraction. Now, this may cover all the defects in this patient's ailment. But there may also be defects in the ocular muscles—as, for instance, a diverging or converging strabismus, or a "hyperphoria," "a tendency of one eye to rise above the level of its fellow." Now, any one or all of these conditions may result in eye-strain and its peculiar train of nervous derangements. Having arrived at a diagnosis, what is the remedy? Assuredly not drugs. Glasses. What form of glass does the patient require? This depends upon the particular defect we wish to correct. The required glass may be spherical, cylindrical, or prismatic. If we are unable to adjust or prescribe the proper glass we must not fail to send the patient to one who is able. If time permitted, I could cite several just such cases where, after much medicine and much suffering, the patient, with the aid of the proper glass, was relieved as if by magic.

Now, as to the form of headache common among young women and girls at puberty. Here we have an entirely different state of things to deal with, and we pass at once from the domain of ophthalmology to that of gynæcology. Who has not been brought in contact with patients who were the subjects of uterine or ovarian disease in whom almost the first word gave emphasis to that "boring" pain in the top of the head? On inquiry, we find the patient subject to leucorrhœa, irregular, scanty, or profuse menstruation, oophoritis, ovarian congestion, or ovarian neuralgia, perhaps a dysmenorrhœa. If she is a married lady, we may find that during the past three or four years she has given birth to as many children, and it may be had one or more miscarriages. Finally, should we examine *per vaginam*, we should find cervical erosion, metritis, or endometritis, perhaps a lacerated cervix or perinæum, with uterine engorgement and prolapsus. Having arrived at the cause of our patient's trouble, the treatment suggests itself. At this point I desire to beg the indulgence of my audience for venturing this opinion, that, aside from actual injury to the parts during childbirth, recovery in these patients can be attained without instrumental aid. I think it is *wrong* for a physician, as a mere matter of routine, to subject every lady patient to the speculum and cotton-holder, even though she is subject to uterine disease.

Now, as to the disturbance so common in young girls at the age of puberty. We find that as the girl approaches this period in her life, instead of attaining a full, rounded form and a strong, healthy physique, she begins to dwindle, becomes pale, anæmic, and chlorotic, and complains of headache, backache, and that indescribable malaise so common to these cases. Now, this is all wrong. Wherein lies the cause of all this? In answering this I can do no better than to quote the admirable words of Dr. William W. Potter, who, in his presidential address before the last meeting of the New York State Medical Society, makes the following statement:

> "I have in mind just now a large and beautiful school-building in a populous city, in which the administration department is located on the first floor and the boys' school on the second floor, while the girls are compelled to ascend to the third story for their instruction. This plan seems to have been adopted with special reference to the destruction of the health of the girl pupils, and I doubt not it is fulfilling its apparent object with great exactitude. In our common schools the system is even more dangerous in its demands upon the stamina of the girls than in the private schools and colleges.
>
> "The scholastic training of girls is being carried on with its greatest vigor at the very time when they are physically least suited to bear the strain. Just when the ovary is beginning to require a large expenditure of nerve force the brain, under our present system, is also demanding all that an active cerebration can produce, and oftentimes even more. Now our girls must be taught mathematics, the classics, English literature and composition, rhetoric, logic, *belles-lettres*, modern languages, music, drawing, painting, astronomy, geology, botany, zoology, and Butler's *Evidences of Christianity*. All this and much more must be crowded into the years between thirteen and seventeen.

"Nature is demanding during this very period that the ovaries establish a function which shall properly fit the young maiden for her future sphere of wife and mother, that she may joyously and healthfully obey the mandate to 'multiply and replenish the earth.' How, let me ask, can she fulfill this important law of her being in any proper sense if her reproductive organs are dwarfed, weakened, and diseased by artificial causes imposed upon her during their development?"

Knowing this to be the great causative factor of disturbance in these cases, the remedy readily suggests itself. In the way of medicine for these patients I might say that often much benefit is derived from Blaud's pill modified, and Flint's tonic chalybeate tablet.

I now propose to speak briefly upon the third and last division of my topic—headache in young children, its cause and treatment. Here we are brought to notice still another phase of our subject, and we pass out of the domain of both optics and gynæcology and into that of hygiene and sanitary science. The usual age at which children begin their school life is between five and six years. At this age the whole being, both mental and physical, is in its highest receptive state. Who does not know that the future man or woman will be very largely according to impressions received during their childhood? How vivid still are the things we saw, did, and felt while we were children! As these mental impressions are retained, so in like manner do we retain physical impressions. It therefore becomes a matter of some importance for us to know just what the physical and mental training of the child is. This brings us face to face with the hygienic and sanitary conditions of the school-house, because it is here that the child passes from six to eight hours of every day and nine months of every year of its life. For the purpose of a better understanding of what follows, it might be well to state that the human lungs contain from five to six millions of air vesicles, that the combined area of these little chambers represents one vast absorbing surface equal to twenty square feet of space, that this is the aerating surface of the blood, and that all forms of matter, whether healthful or deleterious, solid, liquid, or gaseous, are absorbed by this surface. From these facts I think we can see the importance of being placed in a healthful medium, what sort of air our children are breathing, and what sort of food they are eating. We know that every person should have an air space equal to 250 cubic feet, and that this air should be changed about eight times an hour. The amount of fresh air required in an hour per capita is about 2,000 cubic feet. Now, what are the facts as we know them? Out of a total of seven primary-school departments examined, I have found the average number of pupils to a room to be 40, and the average number of cubic feet of air space to a room to be 8,372. I have just stated that the amount of air required is 2,000 cubic feet an hour. For 40 pupils the amount required would be 80,000 cubic feet. Or, in the rooms above referred to, the air should be changed completely ten times every hour. The only means of ventilation of these rooms is by means of the doors and windows. If every window should be lowered six inches from above, then the greatest amount of air that could be moved through the room in an hour, assuming the distance between the floor and the top of the window to be ten feet, would be 66,960 cubic feet, while we notice that the actual requirements in the case are 80,000 cubic feet. Now, what is the result? The child comes home, after its school hours are finished, languid, with malaise and headache, sick. Do we need to suggest the remedy? The fault does not lie with the school board, as a rule; this is made up of the best men in the community. For school purposes the people of Michigan are ready and able to build the *very best* houses. But it is a fact that, in the application of the general principles of proper heating and ventilation, the average architect is very deficient. I think you can understand the reason of this when you remember that the only institution of learning in this country to-day that makes any pretensions at the systematic teaching of sanitary engineering is the Massachusetts Institute of Technology.* Here lies the fault, and here the remedy should be applied.

REPORT OF
A CASE OF DIARRHŒA IN A WOMAN ONE HUNDRED YEARS OLD.

By JOHN C. LEEVER, M. D.,
DEFIANCE, OHIO.

On June 7, 1891, I was called to see Mrs. B., who on the 25th of last March celebrated her one hundredth birthday. She was suffering with a severe diarrhœa of several days' duration. The temperature was only slightly above normal; the pulse, 98.

She had been taking spice teas, which had been her custom in former years, never having taken much "doctor's medicine."

I prescribed powders composed of opium, camphor, kino, and bismuth.

June 8th.—Found the patient no better, having passed a restless night with several movements of the bowels. Discontinued the astringent powder and gave bismuth and salol suspended in mucilage, with aromatics.

9th.—No improvement. Added deodorized tincture of opium, and continued the bismuth, etc.

10th.—No improvement, and she went back to her spice teas for two days, with still no improvement.

12th.—I was again called and ordered a cold-water enema, to which were to be added fifteen drops of tincture of opium, and directed a continuance of the bismuth and salol preparation; but, owing to timidity on the part of the attendants, it was not attended to, but on the following night, the bowels having been so bad (moving every few moments), they were prevailed upon to try the enema. This was given at bed-time. After taking the injection she laughed and said: "Well, that is something new under the sun." She had a good night's rest, the first since the attack, with no movement of the bowels and only one on the next day. That night she took another cold-water injection with like results. Next morning she was dressed and feeling quite well, with the exception of being weak. But about nine o'clock they sent for me in haste. I found her vomiting every few moments. Gave her bismuth subnitrate and copper arsenite with good results.

23d.—Since writing the foregoing, I have called on the old lady several times and find her enjoying her usual good health.

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* On this point our contributor is in error; sanitary engineering is taught systematically elsewhere than in the institution mentioned.—The Editor.

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STOMACH-WASHING IN INFANTS.

THIS procedure has been the subject of much discussion during the past few years, and seems to be growing in favor. Its most active advocates are among those who have had most experience in its use. It has been thus far most extensively employed in hospitals, and in many institutions has already become an established method of treatment. With the appliances always at hand, and with the skill that comes from experience to both physician and nurse, it is a most simple and effective measure. In private practice, with a physician of less experience and a nervous mother or nurse for an assistant, it is obviously less satisfactory. It will probably never become as popular in private practice as other simpler but less effective measures. It is a mistake to suppose, however, that it is a serious operation, to be tried only as a last resort. Dr. Booker, in the *Johns Hopkins Hospital Bulletin*, describes minutely his method, which is very simple and similar to that of Epstein. A soft Nélaton's catheter, about No. 9, is attached by a short glass tube to a common rubber tube two feet long, with a two-ounce glass funnel fitted into the distal end. This is all the special apparatus needed. A pitcher containing half a gallon of tepid water is placed in a convenient position for use. Sometimes it is of advantage to add a teaspoonful of equal parts of bicarbonate and benzoate of sodium. The child is held in the nurse's lap in a sitting posture with the head slightly bent forward and the hands confined by the nurse's left arm passed across the chest. The child should be protected by a rubber sheet. The tube is moistened with water, inserted into the mouth, passed back to the pharynx, and directed downward through the œsophagus into the stomach. Gagging or even vomiting may occur, especially if the tube is delayed in the œsophagus or pharynx. This usually ceases when the tube reaches the stomach. If it continues, the tube should be drawn up a little and carried to one corner of the mouth. It is unnecessary to depress the tongue, a procedure which is apt to provoke vomiting.

When the tube is in position an ounce or two of water is poured into the funnel held just above the level of the child's head. By lowering the funnel before the water has fully flowed out of the tube the contents of the stomach are readily drawn out by siphon action. The tube is then raised and the funnel again filled, and the process is repeated until the water flows away clear. There is no possibility of the tube's entering the larynx or perforating the walls of the stomach.

The stomach tube is employed for three purposes: 1. In the study of physiological digestion. 2. In the study of changes taking place in disordered digestion. 3. As a therapeutic measure.

Troïtzky has recently reported a large number of cases satisfactorily treated by stomach-washing. The best results were obtained in simple gastric dyspepsias without fever. In chronic diarrhœa or gastric disorders it is often of value, but must be accompanied by the use of medicinal measures.

MINOR PARAGRAPHS.

MORTALITY IN NEW YORK STATE IN JUNE, 1891.

THE *Monthly Bulletin of the State Board of Health* for June, 1891, shows a total mortality of 9,321, or 310 deaths per diem; of these, 8,035 deaths only are registered under classified causes, while 1,286, or nearly fifteen per cent. of the total, have been allowed to slip in as "unclassified," whereas the average of unclassified deaths in June for the past six years has not exceeded 978. This excessive mortality from virtually nondescript causes may, in part, have its cause in the persistent lethal influence of influenza, which is not tabulated among the causes of death, although the writer of the report intimates that not fewer than 500 deaths from it are comprised under the acute respiratory and nervous groups, both of which show an excess as compared with the average for June in the past six years. The admission of a large proportion of unassigned causes of mortality is unfortunate, since it vitiates comparisons looking both backward and forward, and should be guarded against as fully as possible, although we are aware that it can not be perfectly done in bulletins that are limited to a small number of specific causes and grouped causes, or classes. In the case of the bulletin under consideration there are only twenty named causes. If the suggestion of the bulletin is correct, that "it is probable that 500 deaths were due to influenza," then this disease still must occupy a high morbific position, for consumption, with 1,098 deaths, is the only separately named cause of death that exceeds that number, although six other grouped classes, notably that of the nervous system, yield a heavier total; or, proportionally stated, the influenza mortality was between five and six per cent. of the deaths from all causes. If this is true it reveals a persistence on the part of epidemic influenza of which many will be surprised to learn. The mortality for the State was not high, being only a little over 20 in a thousand per annum. There was apparently a large reduction in the mortality from diarrhœal causes as compared with that in June, 1890, and in previous years.

A FATTY TUMOR OF THE SPINAL CANAL.

IN the *Gazette médicale de Paris* for July 4th M. Mayet has reported, as occurring in the service of M. Polaillon, hôpital de la Pitié, a lipoma of peculiar origin and symptoms. The patient was about forty years of age, with a good family and personal history, with the exception of a diphtheritic angina several years before. She had only observed the tumor for about three years. It was situated beneath the posterior border of the sterno-cleido-mastoid muscle upon the right side, and was ovoid in shape, movable, very slightly painful, and of a consistence such as to justify the diagnosis of an hypertrophied lymphatic gland. There was a history of weakness in the right arm, and for about six months before the operation a dull pain had existed in the right shoulder and arm, impairing the latter's usefulness. M. Polaillon found, upon operating, that the tumor, which had at first seemed superficial, extended deep toward the spinal column. On dissecting the tumor out, it was seen that it had taken origin inside of the interarticular foramen. The tumor being removed as thoroughly as possible, the nerve symptoms were not much relieved, thus indicating that they were due to pressure within the spinal canal. The principal points of interest in the case are its origin within the canal; its symptoms, local or affecting the superior extremities chiefly; and the possibility of mistaking more serious growths for simple cervical adenitis.

ACTINOMYCOSIS OF THE FACE TREATED BY "ÉLECTRO-CHIMIE."

M. Darier and M. Gautier report, in the *Annales de dermatologie et de syphiligraphie*, a very interesting case of actinomycosis of the face, involving the whole of the right side and extending to the very edge of the lower eyelid, in which, after other methods had failed, simple electrolysis having been persistently tried, a cure was rapidly effected by the so-called electro-chemical treatment, of which Dr. Gautier is the originator. The method employed in the present case was by the hypodermic injection into the diseased tissue of a ten-per-cent. solution of iodide of potassium, followed by the insertion of platinum needle electrodes, through which was passed a current of 50 milliampères for twenty minutes. Three séances at intervals of eight days and one sixty days later accomplished a perfect cure. The administration of chloroform was necessary for the treatment, and, although the patient was in the eighth month of pregnancy, no deleterious results were noticed. The case was observed throughout by Fournier and Mérijot and the patient was presented to the Société française de dermatologie et de syphiligraphie to verify the cure.

THE TETANIFEROUS MAN.

M. Verneuil applied this term, in the *Gazette hebdomadaire de médecine et de chirurgie* for February 14th, to the person who can convey the virus of tetanus to another, although not himself affected by it. He believes that a human being may, for the time being, have in his saliva the germs of tetanus, so that if he bites another, it will be capable of inoculating the bitten person. A surgeon or veterinarian, he holds, may convey about with him the tetanic bacilli in sufficient numbers to communicate the disease to almost any person having an abraded surface or wound with whom he may come into contact. Further than that, he is a danger to himself—safe enough so long as no channel of inoculation exists, but very menacing so soon as he receives a wound. Verneuil suggests that the existence of tetaniferous human beings will be found to be one of the ætiological factors in the so-called "unexplained cases" of sporadic tetanus.

PATHOLOGICAL CHANGES IN THE HEART IN DIPHTHERIA.

An editorial article on Fatty Degeneration of the Heart in Diphtheria, published in our issue for July 4th, was founded on a contribution to the *Archiv für pathologische Anatomie und Physiologie und für klinische Medicin* that we erroneously attributed to "Schlem." A correspondent kindly informs us that the author was Dr. George C. Schlemm, a native and resident practitioner of Saginaw, Michigan, who investigated a very fatal epidemic in Göttingen.

THE CONGRESS OF HYGIENE AND DEMOGRAPHY.

An exhibit from the New York City Board of Health has been sent abroad on the steamship Teutonic to the International Congress of Hygiene and Demography, to be held in London. Seven albums of photographs have been prepared for the purpose of giving a graphic outline of the sanitary undertakings of the board. These include views of the different styles of plumbing, drainage, sewerage, water-supply, and tenement-house supervision.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 4, 1891:

DISEASES.	Week ending July 28.		Week ending Aug. 4.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	0	0	0	0
Typhoid fever	30	8	39	5
Scarlet fever	104	21	99	21
Cerebro-spinal meningitis	1	1	1	1
Measles	150	18	121	8
Diphtheria	63	23	75	25
Small-pox	0	0	0	0
Varicella	2	0	1	0
Whooping-cough	1	2	0	2
Erysipelas	0	0	0	0
Mumps	0	0	0	0

The Tri-State Medical Association of Alabama, Georgia, and Tennessee will hold its third annual meeting at Chattanooga on Tuesday, Wednesday, and Thursday, October 27th, 28th, and 29th, under the presidency of Dr. Robert Battey, of Rome, Ga.. The preliminary programme includes the following papers: Ovariotomy, its Use and Abuse, by the president; The Physiological Functions of the Nose, by Dr. A. B. Thrasher, of Cincinnati; Typhoid Fever complicated with Pregnancy—a Case, by Dr. Andrew Boyd, of Scottsboro, Ala.; The Cure of Pulmonary Tuberculosis, by Dr. Karl von Ruck, of Asheville, N. C.; Intubation and Tracheotomy, by Dr. Gilbert I. Cullen, of Cincinnati; Oxygen Gas and Creasoted Oil in the Treatment of Phthisis, with the Report of a Case, by Dr. J. F. Lynch, of Sanford, Fla.; An entirely New and Successful Treatment of Gonorrhœa and its Sequences, by Dr. G. W. Broome, of St. Louis; The Physiology and Chemistry of Therapeutics, by Dr. G. W. Drake, of Chattanooga; Angina Pectoris, by Dr. W. C. Townes, of Chattanooga; Report of a Case of Neuromimetic Trouble, by Dr. E. E. Kerr, of Chattanooga; Report of a Case of Epilepsy cured by Operations on the Eye, by Dr. H. Crumley and Dr. Frank Trester Smith, of Chattanooga; Evolution from a Scientific Standpoint, by Dr. J. P. Stewart of Attalla, Ala.

An Army Medical Board.—Surgeon-General Sutherland gives notice that a board will be in session in New York during October, 1891, for the examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies. Persons desiring to present themselves for examination by the board will make application to the Secretary of War before September 15, 1891, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between twenty-one and twenty-eight years of age and a graduate from a regular medical college, as evidence of which his diploma must be submitted to the board. Further information regarding the examinations may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

The Barker Anatomical Prize.—This prize has recently been awarded to a lady student, Miss Helen Harper, of the Dublin school. There were three other contestants for the award, all men, but the young woman's work was adjudged to be the best. Her subject was the axillary and costal region, accompanied by a fine dissection prepared, colored, and mounted in a most artistic and intelligent manner.

A Maternity Hospital in Alaska.—It is announced that a maternity hospital is to be established in Sitka, a fund having been started for the purpose, largely by the efforts of Dr. Thwing, of the Mission Hospital. The necessity of such an institution is said to be peculiarly pressing in Alaska, owing to the rude customs relating to lying-in women.

The Paris Academy of Medicine.—It is announced that Dr. H. B. Millard, of New York, and Dr. Cortomoris, of Athens, have been elected corresponding members.

The Alvarenga Prize for 1891, of the College of Physicians of Philadelphia, has been awarded to Dr. L. Duncan Bulkley, of New York, for his essay on Syphilis Insontium.

The Death of Sir Prescott G. Hewett, an ex-president of the Royal College of Surgeons, occurred on June 19th, at the age of seventy-eight years, after a half-century of most successful surgical career.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 26 to August 1, 1891:*

Munn, Curtis E., Major and Surgeon, is granted leave of absence for twenty days, to commence on or about August 5, 1891.

Powell, Junius L., Captain and Assistant Surgeon, granted leave of absence for two months on surgeon's certificate of disability, with authority for his admission to the Army and Navy General Hospital, Hot Springs, Arkansas.

Answers to Correspondents:

No. 361.—Our information is that the law goes into effect on September 1st. The place of registration is the County Clerk's office.

No. 362.—By impregnating absorbent cotton with a solution of mercuric chloride in alcohol, distilled water, glycerin, and fuchsine.

Obituaries.

RICHARD LEA MacDONNELL.

Rarely has the profession of Canada suffered a more serious loss than by the death of Dr. MacDonnell, of McGill University, which took place in Montreal on the 31st ult. In him were possibilities of which the past had given full earnest, and the deepest sadness is in the thought of a life of so much promise thus prematurely removed. Although only thirty-five years old, he had reached a position which gave scope to abilities of first-class order and afforded opportunities of impressing upon a large class of students those qualities of mind so essential in the teacher, so priceless to the taught—honesty, system, and painstaking care.

Upon the death of Dr. Palmer Howard, three years ago, Dr. MacDonnell followed Dr. George Ross in the chair of clinical medicine, a position which his father had occupied in 1845. He had previously been elected on the staff of the Montreal General Hospital. The pages of the *Montreal Medical Journal* for the past twelve years attest the diligence with which he worked at his profession. Of late he has been a valued contributor to our columns, and only three weeks ago we published an admirable lecture of his—probably his last communication.

Four years ago, Dr. MacDonnell had a severe attack of inflammation of the lungs, which was thought possibly to be tuberculous, but after a winter abroad he returned in excellent health. During the past session of the school he was vigorous and well, and accomplished a large amount of literary work. Two months ago he began to fail in health, and went earlier than usual to his summer residence on the lower St. Lawrence; but pulmonary symptoms developed with great rapidity, and he died a few days after his removal to Montreal.

Very few men have entered upon the race with greater advantages than Dr. MacDonnell did. To a fine physique and presence, and a charm of manner which is so often continued in this country in the second generation of Irishmen of the Brahmin class—to use an expression of Oliver Wendell Holmes's—there were added those mental gifts which alone assure success—industry and perseverance. Very early in his career circumstances in connection with the accidental death of his father altered his surroundings and threw upon him responsibilities that were faithfully and courageously met, and that gave an unmistakable stamp to a character naturally refined and noble. Success came, cares lightened, and, with domestic, social, and professional relations of the happiest possible kind, the future could not have looked brighter, but—*es hat nicht sollen sein*, and a devoted wife, an aged mother, and a loving sister, with colleagues, students, and friends, mourn his untimely union with

"The inheritors of unfulfilled renown."

Reports on the Progress of Medicine.

GYNÆCOLOGY.

By ANDREW F. CURRIER, M. D.

Metrorrhagia and its Treatment.—Terrillon (*Jour. de méd.*, Dec. 28, 1890) says that abnormal loss of blood from the uterus is usually an indication of lesions of the genital organs, and is often a menace to life. Four principal types may be distinguished: one in which the menstrual flow is abundant and prolonged, another in which there is almost a continuous flow with cessation only at irregular intervals, another in which the flow is at long intervals but very profuse, and another in which these types may be more or less combined. The hæmorrhage may be followed by the expulsion of clots, which may have been the cause of severe uterine colic. The anæmia in these cases is a pronounced symptom and presents varying degrees of pallor; there may also be loss of appetite, constipation, and general weakness. Death rarely occurs as an immediate consequence of such hæmorrhages, post-partum hæmorrhages being excepted, but it may result as an indirect consequence. The symptom calls for a careful examination of the pelvic organs. Salpingitis, especially if of gonorrhœal origin, may be accompanied by persistent hæmorrhage. It may cease with atrophy of the ovaries. Hæmorrhage from the uterus frequently occurs after operations upon the genital organs, sometimes after amputation of the breast. In general terms, it may be said that there is hæmorrhage from the uterus whenever it is subjected to any particular irritation or undergoes any pathological enlargement. The first symptom with interstitial myomata is hæmorrhage, especially in the intermenstrual period, this being most marked if the tumor becomes submucous and forms a polypus. Sarcomata and epitheliomata are always announced by hæmorrhage. Bleeding from inflammations of the womb and in connection with abortion are a matter of common experience. The diagnosis of the cause of uterine hæmorrhage is not always easy. Prior to the age of thirty the cause is seldom uterine myoma or epithelioma; it is very often abortion, salpingitis, or metritis. Between the ages of thirty and forty-five the causes may be myoma, epithelioma, sarcoma, polypi, metritis, abortion, or salpingitis. With myoma or salpingitis the blood is clear and unmixed. With epithelioma and degenerating myoma the blood is often mixed with pus, and in the intervals there may be a discharge of watery or grumous fluid. After the menopause a flow of blood is usually suggestive of sarcoma or epithelioma, though it may be due to the development of an ovarian tumor or to the degeneration of a myoma.

The treatment of uterine hæmorrhage may include intravaginal, extravaginal, and direct or uterine means, and the latter are most frequently required. The method of treatment most commonly employed consists in the intra-uterine injection of hot water, and its effect is speedy and satisfactory. The patient should receive the injection in the dorsal posture with a bed pan under her. If this method fails, a tampon should be used of aseptic absorbent cotton or iodoform gauze, the vagina having been properly disinfected with a carbolized or bichloride-of-mercury solution. Externally one may use ice upon the abdomen or the vulva, sinapisms, and ligatures around the extremities. For internal remedies one may use opiates to paralyze the uterine muscle, or ergot to contract it, and experience in such matters is the best teacher.

Thure-Brandt's Method of Massage.—Laudau (*Jour. de méd.*, March 29, 1891) says that this method possesses great advantages, even when considered only as a means of exploration. It has also enabled the author to relieve a certain number of pathological conditions which are worthy of record. When one has learned to palpate correctly, to appreciate the manner in which the uterus contracts to the normal condition, one may conclude, by consideration of the degree of the contractions, whether a condition under consideration is a myoma or a metritic process. In the first case the uterus will contract irregularly, in the second not at all. Certain pathological products undergo a remarkable change under this treatment. Malpositions of the womb are frequently rectified. In some cases a sac with distended walls may be felt on one or the other side of the uterus, and after a few days of treatment the relaxed condition of the walls will show that the quantity of the contents has diminished. Subsequently the sac may refill and that fact may be appreciated. Thüre-Braudt's method enables one to diagnosticate cases in which a diagnosis is not feasible by other methods. There is no doubt that our belief in the perfection of the old method of examination by bimanual touch has retarded our progress in the knowledge of the physiology and pathology of the female genital organs.

Electricity in Gynæcology.—Nagel (*Jour. de méd.*, Feb. 15, 1891) has written .an article that will have a tendency to calm the enthusiasm of certain specialists who have recently expressed themselves with great positiveness concerning the results of electrotherapy in gynæcology. The author objects to the pretension of rigorous dosage in the use of electricity. Statements of such a character seem to him based upon the imagination. He thinks that electricity is indicated and may give good results in pelvic peritonitis, on account of the congestive effects of the current, which favor absorption of exudates. Of thirty-two cases treated by him, there was failure to produce good effect in a certain portion, but in most of them there was decided improvement, especially in producing relief from pain. He disapproves of the intra-uterine use of galvanism for stenosis of the cervix. In a series of cases in which dysmenorrhœa proceeded from this cause simple dilatation produced the desired relief, and in three cases sterility was overcome. The most important indication for intra-uterine galvanization is uterine myoma, though the author does not think that the clinical histories published by Apostoli prove its supreme efficacy. In most of the cases treated by him there was diminution of hæmorrhage, but in no case was there diminution in the volume of the myomatous uterus.

The Treatment of Vaginismus with Galvanism.—Lomer (*Jour. de méd.*, March 29, 1891) reports two cases of vaginismus in married women, whose ages were twenty-two and twenty-seven, in which the galvanic current was used successfully. The negative electrode, consisting of a rectangular plate seven by fifteen centimetres in size, was applied to the abdomen, and the positive, a rounded cylinder five centimetres in diameter, was applied upon the perinæum at the entrance of the vagina. The current was first applied every two days, then every day, and then every week, each *séance* lasting four or five minutes. The current used was of weak intensity, and after a few applications the spasms of the vulvar sphincter gradually became less violent. Then the vaginal entrance became less and less sensitive, until at length sexual intercourse became possible for the first time in years. In both cases the vaginismus was complicated with dysmenorrhœa, and the latter symptom was also relieved by the electricity. At the beginning of the treatment the current could be tolerated in greater strength than subsequently, when the vaginismus had been relieved. The conclusion from this fact is that convulsive affections of this character are complicated with diminution of galvanic excitability.

Changes of the Ovaries in connection with Fibromyoma of the Uterus.—Popon (*Gaz. méd.*, March 21, 1891) gives the following conclusions:

1. In fibromyomata of the uterus the ovaries are almost always the subject of more or less extensive changes, including the tunica albuginea, the interstitial tissue, and the follicles.

2. Changes in the interstitial tissue are most frequently observed, being always manifested by proliferation of the connective tissue with increase in the volume of the ovary.

3. This interstitial process appears to extend uniformly along the length of the entire cortical layer, or it may involve only small portions of the organ. It may involve only vessels and nerves at the periphery, and appear as a thickening of the vascular walls with obliteration of the lumen of the vessels, together with thickening of the perineurium and atrophy of the nerve fibers.

4. The follicles participate in this process in two different ways: either they present an exaggerated development, each ovary showing cystic degeneration, representing the Graafian follicles in different stages of their development, or the follicles are destroyed, having undergone an atresia which involves the primary and the Graafian follicles.

5. The same process of atresia occurs also in cases of cystic degeneration with the formation of small cysts, the result of the atresia being to cause the appearance of bodies of different dimensions (corpora albicantia) corresponding to the volume of the distended follicles.

6. This obliteration of follicles appears to be the most frequent mode of termination of affections of the ovary (follicular oophoritis). The principal character of the corpora albicantia which result from the hyperplastic Graafian follicles is the absence of vitelline cells. In certain cases, however, accumulations of pigment are found at their periphery or their center, resulting from hæmorrhage which has preceded in the cavity of the follicle.

7. The medullary substance of some ovaries is characterized by excessive vascularity.

The Diagnosis of Salpingo-oophoritis.—Michon (*Jour. de méd.*, Dec. 28, 1890) says that in ordinary cases the diagnosis of salpingo-oophoritis is not difficult. Palpation shows the characteristic dilatation of the tubes and their relations with the corresponding angle of the uterus. The history and the course of the disease confirm the conclusion reached by the bimanual examination. In some cases, however, it is very difficult to determine the nature of the tumor in the true pelvis. One may find a pathological swelling of this character in the lower portion of the broad ligament or fixed by numerous adhesions in the fold of Douglas, and then the diagnosis would be uncertain between a tubal tumor and an intraligamentous cyst. There may be dilatation of the external portion of the tube without change in its internal portion, and if there are no adhesions the tumor may be circumscribed and elastic. Such a tumor may be ovarian and it is desirable to possess some sign by which such a condition can be distinguished from salpingo-oophoritis. Lebedeff has observed in cases of the latter variety that the volume was variable according to the time of examination. The menstrual period seems to have an important bearing with respect to their size, the volume increasing at the beginning of menstruation, and diminishing when the period is over. Frequently this change in the size is limited to one side, the side which is not diseased showing no change in volume; or the tumor on the diseased side may be unchanging while the tube on the other side swells with the beginning of the menstrual discharge. These changes are due, of course, to an afflux of blood during menstruation in the ovarian follicle and in the tube. Schröder has observed swelling of the tubal mucous membrane during menstruation. It is possible that during the period there is desquamation of a portion of the inflamed mucous membrane. This sign of the change in volume of the tubal swelling proposed by Lebedeff is considered by the author an important contribution to the diagnosis of such conditions.

Vaginal Hysterectomy in the Treatment of Suppurations of the Pelvis.—Segond (*Anales de obst., ginecop. y ped.*, March, 1891) gives the following conclusions:

1. For all who accept this method of operation the indications are the same as for abdominal section with bilateral removal of the annexa. The bilateral character must be insisted upon, for a healthy ovary should not be removed by vaginal section.

2. As to the details of the operation, the author would follow step

by step the directions given by Péan, especially using the large forceps which Péan has recommended. The patient should be placed in the left lateral posture, but the dorsal may be used if the uterus is not readily accessible.

3. As to the steps of the operation, the neck of the uterus is to be separated from its vaginal attachments two to four centimetres from the os, then divided on either side from its attachments sufficient to allow its ready descent. If the uterus is fixed in the midst of large deposits of pus, it should be removed without opening the peritonæum. The abscesses may then be evacuated through the opening which has been made. If there are no circumuterine abscesses, the uterus having been removed, the abscesses which exist may be opened with the finger without breaking up the existing adhesions or extirpating the annexa. In cases in which the uterus and annexa descend easily their removal will not be difficult. This method is superior to abdominal section, inasmuch as there is no resulting abdominal scar, the prognosis of the operation is better, and the cure is more definite, more radical, and more complete.

Drainage of the Abdominal Cavity after Laparotomy.—Sänger (*Crónica méd.*, Jan. 20, 1891) believes theoretically in the complete closure of the abdominal wound after section, but says that drainage is often a necessity. One may drain with glass tubes, by intra-abdominal tampon, or by means of a tube containing absorbent material. Sänger prefers the last method, but sometimes uses the second. Drainage may be used for three or four days, and cases which require such treatment usually follow a very satisfactory course. The intra-abdominal gauze tampon has the same inconveniences as simple capillary drainage, for the gauze becomes saturated and the exudate within the abdomen does not find a ready exit. If there is fear of hæmorrhage from accident to the ligatures, especially in cases in which there have been severe intraligamentous and retroperitoneal lesions, combined drainage should be used—that is, with a tube surrounded by gauze. The indications for the use of the intra-abdominal tampon are as follows:

1. Circumscribed foci of decomposing blood, or blood which is liable to decompose, and foci of secretions the evil effects of which, both locally and generally, can not be overcome by the absorbing power of the peritonæum.

2. The possibility of a secondary accumulation of secretions which, after decomposition and absorption, may effect septic intoxication.

3. The existence of danger of rupture of injured organs and leakage of their contents into the abdominal cavity. This refers especially to the bowels and bladder.

4. The presence of extensive bleeding surfaces from which there may be considerable exudation.

These indications are applicable in salpingo-oophorectomy for pyosalpinx, ovarian abscess, exudative pelvic peritonitis, intraperitoneal hæmatocele, inoperable uterine tumors, chronic peritonitis, injury to and loss of substance of the pelvic peritonæum, certain ectopic pregnancies, and intraligamentous hæmatomata.

A Simplified Treatment of the Pedicle in Abdominal Hysterectomy.—Doléris (*Jour. de méd.*, April 26, 1891) expresses a decided preference for the extraperitoneal treatment of the pedicle after hysterectomy. He believes that this method may be so carried out as to avoid the tedious treatment which has been common with large and fleshy pedicles, and which involves prolonged suppuration and sloughing, painful traction, etc. The modifications that he proposes are as follows:

1. The trimming of the pedicle so that only a small cone shall be left, which will descend into the abdominal cavity and will not make severe traction necessary.

2. Cauterization of this pedicle with the red-hot iron.

3. Suture of the edges of the pedicle to the abdominal wound and relieving tension by means of pins transfixing the pedicle and resting upon the abdomen.

4. Removal of the pins on the eighth or tenth day, cutting away dead portions of the stump and allowing the remainder to descend into the abdomen.

5. Cutting the elastic ligature in the bottom of the wound on the twelfth day, and removing it by means of a string tied around it at the time of the operation.

6. Removing all sloughing tissue and passing a sufficient number of sutures to close the bottom of the wound.

7. Only a small quantity of antiseptic powders need be used, as the stump will remain quite dry after cauterization. Nine cases have been treated successfully in this manner.

Miscellany.

The Successful Transplantation of Malignant Growths in the Human Being.—The *Lancet's* Paris correspondent, in a letter published in that journal for July 4th, says that a communication on this subject, which has evoked quite a tempest of expostulation in both the lay and medical press, was made by Professor Cornil at the Académie de médecine on the 23d of June. For many years past, the writer continues, attempts have been made to reproduce cancer in the lower animals by the process of grafting or by the injection of cancerous juice. In this connection the names of M. Goujon, M. Onimus, and M. Legros will be familiar to your readers, nor will the successful attempts of Hanau to transplant fragments of malignant growths from one animal to another of the same species be forgotten. The positive results obtained by Dr. Morau—results communicated to the Société de biologie on May 2d, and rigorously controlled histologically by Professor Cornil—prove that the cylindrical epithelioma of the mouse can be exactly reproduced in a healthy individual of the same species by simply injecting hypodermically the milky juice of the neoplasm. It has, however, been reserved for a surgeon, *not* of French nationality, and whose name Professor Cornil did not, for obvious reasons, feel justified in divulging, to prove experimentally that fragments of sarcomatous and epitheliomatous growths can be transplanted from one human mamma to its healthy fellow, there to develop into tumors both clinically and histologically identical with the parent neoplasms. In the first and more conclusive case a woman suffering from a large tumor of the breast had it removed by a surgeon who, while the patient was still under the influence of chloroform, inserted a minute fragment of the excised growth into the other breast, which was then quite healthy. Antiseptic precautions having been rigidly taken, primary union ensued. But soon there developed in the gland experimented on a hard nodule, which, having, after the lapse of two months, attained the size of an almond, was, in its turn, excised by the same practitioner. Fragments and sections of the two tumors were forwarded to Professor Cornil—this occurred four years ago—who found that they were structurally identical, being composed of fasciculated sarcomatous tissue, made up of long fibro-plastic cells arranged in decussating bundles. Sections of the graft-born tumor revealed a large number of cells undergoing the process of karyokinesis, indicating rapid growth. Its vessels had anastomosed with those of surrounding parts, and its cells had penetrated gradually into the neighboring normal parts and effected their transformation into sarcomatous tissue. The patient succumbed some time after the second operation to an acute intercurrent affection, and the necropsy failed to bring to light any trace of sarcoma either in the lymphatic glands, the viscera, or the cancellous bony tissue. It is thus fair to assume that the grafting was a genuine process, and that the growth developed at the seat of the transplantation was not a secondary one of spontaneous origin. The second experiment was analogous to the first, only in this case the growth originated by the grafting in the healthy mammary gland could not be compared histologically with the original neoplasm—a cylindrical epithelioma—owing to the patient refusing to submit to a second operation, and having been consequently lost sight of. These experiments are obviously, when viewed from a scientific standpoint, of vital importance, and, considered in connection with recent researches on the parasitic nature of malignant growths, can not fail to be of great use to future investigators. But morally no possible excuse can be found for such trifling with a precious human life, and the conduct of the anonymous surgeon in question fully merits the condemnation passed on it by M. Le Fort and M. Moutard-Martin, whose remarks were cheered to the echo by the members of the Académie present on the occasion. It is only just to add that Professor Cornil hastened to associate himself with the sentiments expressed by his colleagues, alleging that his sole motive in bringing the matter to the notice of his fellow academicians was a purely scientific one. The lay press was, of course, not behindhand in indignantly protesting against such an inhuman proceeding, and until the Director of the Assistance Publique declared, in reply to a question put at a sitting of the Conseil Municipal, that the experiments had not taken place at any of the Paris hospitals —the *Bulletin médical* goes further, and denies its occurrence at any *French* hospital—the emotion was great among the public. No one who has the privilege of knowing Professor Cornil, who is kindness itself, would for one instant entertain the belief that this distinguished pathologist had been actuated by aught but the most elevated humanitarian motives in making public—after a lapse of four years, be it said —the results of an experiment whose practical importance can not well be exaggerated, however severely one may condemn the proceedings of its author.

The Local Treatment of Dysentery.—Dr. H. C. Wood contributes the following article to the August number of the *University Medical Magazine:*

"There seems to me to be in modern medical thought a very strong tendency to consider disease as constitutional rather than local. I do not doubt but that there are one or more forms of dysentery dependent upon the presence of poisons in the blood, but I feel very confident that the dysentery, as we see it ordinarily in this climate, is essentially a local inflammation, independent of any blood poisoning. If this be true, the disease should be especially amenable to local treatment. It is true that the ordinary treatment, which seems not to be local, really owes much of its efficiency to a local influence. Thus, the purgative acts by a purely local depletion; the mercurial, or the ipecac, by a local stimulation of the glands involved; whilst the bismuth spreads itself upon the mucous membranes and by its local action lessens inflammation. It has seemed to me, however, worth while to draw the attention of practitioners to the value of the direct application of remedial agents to the affected parts.

"Many years ago I published a series of cases of chronic dysentery demonstrating the extraordinary efficiency of forced enemata containing one half a drachm to a drachm of nitrate of silver dissolved in two or three quarts of water, and further experience has corroborated all that I said. Indeed, from time to time have appeared papers in the medical journals proposing the treatment as both novel and efficacious.

"In acute dysentery, involving the colon high up, I have found large enemata, containing two to three drachms of subnitrate of bismuth, much more efficient than the exhibition of bismuth by the mouth. When the symptoms are severe, this local treatment may often be preceded with advantage by washing out the colon with large quantities of cold water. I have never used injections of nitrate of silver in acute dysentery, although the effect of the local application of the nitrate in other inflammations of mucous membranes would justify trial of the remedy. I have seen, in one or two cases, large enemata of very hot water injected without affording relief, and believe that hot water enemata are, in their ordinary results, not at all comparable with large injections of ice-cold water.

"When the lower part of the colon is affected, the local use of ice sometimes has an almost marvelous effect. I have, indeed, seen the whole aspect of a very severe and alarming case, in which the symptoms indicated that the colon was affected high up, changed in a single hour by the continuous use of *ice suppositories.* While it is not necessary to have the pieces of ice entirely regular in shape, care should be exercised that no sharp edges are left. The suppositories should be rapidly used, one being put into the rectum every three to five minutes, so as to get, for at least half an hour to an hour, the effect of the continuous application of cold.

"When the tenesmus is very severe, iodoform suppositories are often much more efficient than opium in bringing relief.

"A remedy which has been from time to time recommended very highly in dysentery, but has not, I think, been much used, is ergot; and when the passages contain large quantities of blood, or are nearly pure blood, the extract of ergot would seem to be indicated. I have never myself used ergot by the mouth in these cases, but have employed suppositories containing twelve grains of extract of ergot and four grains of iodoform, used every two hours until four or five suppositories had been taken with, seemingly, great advantage.

"I do not mean to advocate the local treatment of dysentery as a substitute for the use of mercurials, purgatives, and ipecacuanha, etc., but as a very important adjuvant to the older forms of treatment. Nevertheless, in my experience, the effect of local remedies has been more prompt and decided than that of drugs given by the mouth; but in cases of any severity the attack upon the disease may be made from each end of the mucous tract."

The article closes with two brief clinical histories.

The Seventh International Congress of Hygiene and Demography.—The meetings of the Section of Preventive Medicine will be held in the rooms of the Society of Antiquaries, Burlington House, Piccadilly, London, on Tuesday, Wednesday, Thursday, and Friday, August 11th, 12th, 13th, and 14th, from 10 A. M. to 2 P. M. The following arrangements have already been made: On Tuesday, after a short address by the president (Sir Joseph Fayrer), a discussion will be held upon The Mode of Preventing the Spread of Epidemic Disease from one Country to Another. The discussion will be opened by Surgeon-General J. M. Cunningham, C. S. I., of London. Professor Proust, of Paris, will follow with a paper entitled Mesures à prendre à l'égard des navires provenant de régions contaminées ou suspectes pour empêcher l'importation en Europe des maladies exotiques transmissibles. Inspector-General Lawson will read a paper on The Communicability of Cholera from Country to Country. Dr. Ashburton Thompson, official delegate of the Government of New South Wales, will read a paper on Quarantine in Australasia: Theory and Practice. The President; Dr. Janssens, of Brussels; Dr. Rochard, of Paris; Dr. Felkin, of Edinburgh; Dr. A. J. Martin, of Paris; Dr. Stékoulis, of Constantinople; and Dr. Hewitt, of Minnesota, have also expressed their intention of taking part in this discussion. On Wednesday a discussion will be held upon Diphtheria, with Special Reference to its Distribution and to the Need for Comprehensive and Systematic Inquiry into the Causes of its Prevalence in Certain Countries or Parts of Countries, with a View to its Prevention. The discussion will be opened by Dr. Edward Seaton, of London. Dr. Schrevens, of Tournai, will follow with a paper, Sur les modes de contagion de la diphtérie. Dr. Hewitt, of Minnesota, will read a paper on Diphtheria in Minnesota. Dr. S. W. Abbott, of Boston, will read a paper on Diphtheria in Massachusetts from 1871 to 1888. Mr. Matthew A. Adams, F. R. C. S., of Maidstone, will read a paper on The Relationship between the Occurrence of Diphtheria and the Movement of the Subsoil Water. Dr. Gibert, of Havre, will read a paper entitled Mémoire sur la diphtérite au Hâvre. Mr. Charles E. Paget, of Salford, will read a paper entitled A Local Examination of the Difference of Susceptibility to Diphtheria between Old and New Residents. Communications on the same subject are promised by Professor D'Espine, of Geneva; Professor Eugène Hubert, of Louvain; Dr. Jules Bergeron, of Paris; and Dr. John W. Tripe, of London. On Thursday a discussion will be held upon The Relation of Alcoholism to Public Health, and the Methods to be adopted for its Prevention. The discussion will be opened by Sir Dyce Duckworth, LL. D., M. D., of London, and by Professor Westergaard, of Copenhagen. Further communications are promised by M. Milliet, of Berne; Dr. Norman Kerr, of London; M. Canderlier, of Brussels; Dr. Baer, of Berlin; Mr. J. J. Phillips, of London; Dr. Rochard, of Paris; Dr. Hewitt, of Minnesota, and Dr. Isambard Owen. On Friday Deputy Surgeon-General Bostock, C. B., and Sir Vincent Kennet Barrington, delegates from the Metropolitan Asylums Board, will communicate papers, illustrated by maps and diagrams, on The Hospital and Ambulance Organization of the Metropolitan Asylums Board for the Removal and Isolation of Infectious Disease. Facilities will be afforded to members of the congress desirous of visiting the hospitals, hospital-ships, or ambulance stations of the board. The order of reading, on the several days, of the following papers, will be hereafter announced: Dr. Ransome, F. R. S., of Manchester—On the Need of Special Measures for the Prevention of Consumption. Dr. Rochard, of Paris, will speak on this subject. Professor Finkelnburg, of Bonn—The Influence of Soil on the Spread of Tuberculous Diseases. Dr. Gibert, of Havre—De la distribution géographique de la phthisie pulmonaire dans la ville du Hâvre. Rapports de la phthisie avec la densité de la population, avec l'alcoolisme et avec la misère. Dr. J. Edward Squire, of London—To What Extent can Legislation Assist in diminishing the Prevalence of Consumption and other Tubercular Diseases? Dr. Priestley, of London—The Improved Hygienic Conditions of Maternity Hospitals. Greene Pacha, of Cairo—The Influence of the Nile on Mortality in Egypt. Surgeon-General Beatson, of Eastbourne—Prevention of Disease in Growing Towns. Dr. Hewitt, of Minnesota, will speak on this subject. Sir William Moore, K. C. I. E., of London—The Prevention of Fevers in India. Dr. Sisley, of London—The Prevention of the Spread of Epidemic Influenza. Dr. Van Dvoremaal, of The Hague—La prévention de la cécité. Dr. Felkin, of Edinburgh—Observations on Malaria and Enteric Fever in Central Africa, and on the Possible Antagonism between Malaria and Phthisis. Dr. Patrick Manson, of London—The Geographical Distribution, Pathological Relations, and Life History of *Filaria sanguinis hominis diurna* and *Filaria sanguinis hominis perstans* in connection with Preventive Medicine. Professor Pistor, of Berlin—On Disinfection. Mr. J. Y. W. MacAlister, of London—Public Libraries and Infection. Dr. P. Sonsino, of Pisa—The Principal and Most Efficacious Means of preventing the Spread of Entozoal Affections in Man. Mr. G. Brendon Curgenven, of Teddington—The Disinfection of Scarlet Fever and other Infectious Diseases by Antiseptic Inunction. Dr. Sandwith, of Cairo—Cholera in Egypt. Dr. Lewis W. Sambon, of Naples—Measures for Preventing the Spread of Infectious Diseases. Dr. Phineas S. Abraham, of London—On the Alleged Connection of Vaccination with Leprosy. ⁂ Communications respecting this section should be addressed to Dr. Isambard Owen, 40 Curzon Street, London, W.

EXTRACTS FROM THE GENERAL REGULATIONS OF THE CONGRESS.—*Membership of the Congress:* "All persons who are interested in the work of the congress are eligible to become members thereof. Every member will be furnished with a ticket of admission to the congress on payment of £1 sterling [apart from any subscription he may contribute toward the congress fund], which sum should be sent at the same time as the application for membership, together with the title and address of the applicant given in full. Each gentleman will be entitled to one lady's ticket at a cost of 10s., but such ticket will not entitle the holder to receive a copy of the Transactions. Ladies are entitled to become full members of the congress on payment of the full amount of £1 sterling. A complete programme will be furnished to every member before the congress, with abstracts of the papers to be read. [Communications respecting membership should be addressed, and checks made payable to 'The Hon. Secretary-General, Congress of Hygiene, 20 Hanover Square, London, W.' Checks should be crossed 'Bank of England.'] *Papers and Speeches:* Papers for the congress shall be in either English, French, or German. Unless determined otherwise by the president of the section, the time allowed for reading each paper shall not exceed fifteen minutes, and speakers who take part in the discussions shall be limited to ten minutes. No paper will be allowed to be read if it has been previously published or communicated to any society. Abstracts of papers to be read will be published before the opening of the congress, provided such abstracts be furnished by the authors to the secretaries of the sections in which the papers are to be read, not later than July 10th. Such abstracts must not exceed five hundred words, and, to insure correctness, should be type-written. The papers *in extenso* must be forwarded not later than July 15th to a secretary of the section in which they are to be read. Each author should retain a copy of his paper. To insure the correct reporting of discussions, every speaker is invited to furnish the secretaries of each section with a written *précis* of his remarks in the language in which they were made." [Speeches may be made in French, German, or English.]

The American Laryngological Association.—The following papers will be read at the thirteenth annual congress of the association, to be held in Washington, D. C., on September 22, 1891: A Case of Thyreotomy in a Child Eighteen Months Old, by Dr. Clinton Wagner, of New York; Some of the Uses of Pyoctanin in Diseases of the Upper Air-passages, by Dr. R. P. Lincoln, of New York; The Troublesome Symptoms caused by the Enlargement of the Epiglottis, and the Advisability of reducing the Size of this Cartilage by Operative Measures, by Dr. Clarence C. Rice, of New York; The Surgical Treatment of Tubercular Laryngitis, by Dr. D. Bryson Delavan, of New York; Various Forms of Disease of the Ethmoid Cells, by Dr. F. H. Bosworth, of New York; A Case of Epithelioma of the Larynx, by Dr. Morris J. Asch, of New York; Useful Deductions derived from the Study of a Case of Cicatricial Contraction of the Larynx, possessing Unusual Clinical Features, with Exhibition of Specimen, by Dr. W. C. Jarvis, of New York; Three Obscure Cases of Syphilis of the Nose, by Dr. Charles H. Knight, of New York; Nasal Papillomata, by Dr. Jonathan Wright, of Brooklyn; A Case of Foreign Body in the Trachea, by Dr. W. C. Glasgow, of St. Louis; The Tonsil in Health and Disease, by Dr. Harrison Allen, of Philadelphia; Observations on Paralysis of the External Tensors of the Vocal Cords, by Dr. George W. Major, of Montreal; and The Laryngo-tracheal Neoplasms of Tuberculosis, by Dr. John N. Mackenzie, of Baltimore.

Medicine and the Church.—Dr. Thomas Dwight combats certain statements made by Dr. Andrew D. White in the *Popular Science Monthly*. From Dr. Dwight's letter, which appeared in the *Boston Medical and Surgical Journal* for July 30th, we copy the following:

"The questions which particularly concern me are those connected, with the relation of the Catholic Church to medicine, especially in the Middle Ages and at the Renaissance." The whole spirit of his [Dr. White's] article is bitterly prejudiced and unjust. He seeks continually to give the impression that the Church has oppressed medicine. Let us now take up several points one by one.

"By a slight alteration, which I am sure was unintentional, you have made one of his statements much worse than it was originally. You say: 'The School of Salerno was held in aversion by strict churchmen.' Dr. White said, 'by multitudes of strict churchmen.' . . . This was unlikely, but not impossible. The school was founded by the Benedictines, who certainly were considered strict churchmen. A little later you say, following, I believe, Dr. White quite accurately: 'Pope Innocent III, early in the thirteenth century, forbade physicians, under pain of excommunication, to undertake medical treatment without calling in ecclesiastical advice.' In point of fact, what is referred to was not done by Innocent III, but by the Fourth Council of the Lateran, during his reign. That, however, is a detail of little consequence. The point is, first, the entirely false impression that is given, and, secondly, the penalty. What was decreed was, that a physician, on being called to a case, should advise the patient to attend to the state of his conscience—that is, to send for a confessor; but this in no way implied that the priest was to interfere with the treatment of the case. The penalty for not doing this was not excommunication, but prohibition to enter a church, which was a very different thing from excommunication in those days. There is another part of the same canon which Dr. White does not quote, but which is worthy of mention. It was that the physician should advise no remedy for the good of the body that might be to the injury of the soul. The penalty in this case was excommunication. This, indeed, is a check on medicine, but a most salutary one. The talk of Vesalius having been driven to exile and death is absurd. So far from having been oppressed by the Church, he flourished chiefly in Italy and Spain, the two countries in Europe where she was strongest. He professed anatomy at Padua, Bologna, and Pisa, apparently going from one to the other. He later went to Spain. He no doubt met with great opposition, but probably chiefly from his own profession. He remained at the Court in Spain for nineteen or twenty years, and then set out on a pilgrimage to the Holy Land, returning from which he suffered shipwreck and death at the Island of Zante. There are a variety of rumors as to the cause of this pilgrimage, which I myself investigated some years ago. There are sensational stories of his having by mistake cut into a living man, and, of course, from certain sources there are hints at the suspicion of heresy and the Inquisition. It seems to be all surmise. I could find nothing pointing to clerical oppression. Then, again, it was said that he went to escape professional jealousy, or to make money, or to get rid of his wife. For my part, knowing nothing about it, I incline to the belief that he went, like many others, because he wanted to. Be that as it may, it is certain that at Jerusalem he received letters from the Senate of Venice offering him the professorship of anatomy at Padua, which disposes effectually of Dr. White's statements about his being driven to exile and death."

"Dr. White says, 'Pope Boniface VIII interdicted dissection as sacrilege, threatening excommunication against those who practiced it.' This is utterly false. What makes it worse is, that the nature of the decree of Boniface VIII is set forth in its title, which is as follows: '*Corpora defunctorum exenterantes et ea immaniter decoquentes, ut ossa a carnibus separata ferant sepelienda in terram suum, ipso facto sunt excommunicati.*' That is to say, it forbids the eviscerating and boiling the bodies of the dead for the purpose of bringing the bones home to the country of the departed. This is a custom which appears to have sprung up, or at least been in use, during the Crusades. Neither in this decree nor anywhere else, so far as I have been able to learn, is there any prohibition of dissection.

"Now, as to Dr. White's second conclusion, 'that in proportion as the grasp of theology upon education tightened, medicine declined, and in proportion as that grasp has relaxed, medicine has developed,' I have something to say. The schools of Salerno, Padua, Bologna, Rome, Naples, Pavia, and Pisa show that the country where medicine, and, above all, where anatomy flourished was just where the grasp of theology was strong. Further, though very probably in some cases abused by individuals, the influence of theology on medicine has been for morality. One instance has been already mentioned; another is the protection of the unborn. I can well believe that where all theological restraint is thrown away, experiments may be tried by which science will prosper at the cost of patients. Reports of such—let us hope unfounded ones—have recently come from Berlin."

Medical Advice with Medicines at Seventy-five Cents a Year.—The *Medical News* for August 1st says, in an editorial article:

"In the last number of a highly esteemed English exchange there is a very suggestive letter from a correspondent, who frankly confesses that he is regularly attending children at the rate of fifty cents a year, and adults at seventy-five cents a year, medicines included, and he is doing this even though the patients live three miles away. The writer justifies himself in this way: 'I think we may justifiably feel some pride that we have a higher aim than simply working for pay, and that the care and attention which we give to any particular patient is not governed by the amount of the fee. What shall be said of the hospital physician who gives his services for nothing at all? often thereby depriving the humbler practitioner of patients who could well afford to pay a moderate fee. Besides, is there any greater dignity in demanding a higher than a lower fee? Is there any dignity in taking fees at all, or is the whole of the nobility and dignity dependent on the spirit in which the work is done?'

"This defense gives glimpses of certain characteristics and social conditions of English life that provoke sad and serious thoughts. It also stimulates questions as to the beam in our own eye. With us there is certainly not any such widespread poverty as that of which we catch the hint between the lines of the correspondent. It is commonly said that as yet in America one can make a decent living by the practice of medicine without stooping to the five or ten or twenty-five cent fees not uncommon in England.

"But with us there are several considerations to modify our self-content. First, it may be noted that gratuitous treatment at the private office is very much more common with us than in other countries. It comes natural to the American character to ask a good-sized fee, or be quite as willing to let the service go purely *gratis*. We consider compromise beneath our dignity. It is aid that a friend of a prominent New York lawyer sent the legal light a check for five hundred dollars in gratitude for a bit of advice incidentally given with a passing handshake. The check was returned with the curt reply that his smallest fee or retainer was a thousand dollars. In medical practice there are similar habits of thought and feeling, and the average of fees and non-fees greatly reduces the supposed regular charge.

"In the next place, the thin edge of the wedge is being driven in much faster than is commonly confessed or generally known. It is true that homœopaths are very numerous who give advice and medicines for fifty cents a visit, and not infrequently for twenty-five cents. Willingly or unwillingly, physicians are forced to compete by 'meeting' the quack's price.

"Another phase is shown in the formation of medical clubs. These are not at all uncommon, and a doctor is hired by the year at a very low rate. Various fraternal organizations succeed by this plan in getting their members and the families of their members treated for merely nominal fees.

"The next step in the *descensus Averni* is that taken by the drug-store doctor. The writer once saw a physician enter his drug-store, and passing along the rows of waiting patients, briefly learned the symptoms each complained of, in the presence and hearing of all the others. He then prescribed, and the prescription was at once handed to the clerk. There was no charge for the advice or prescription, the medicine alone being charged for. Sometimes the doctor has a private office behind or within the store. More rarely the office may not be connected with the store.

"The dispensing druggist must not be forgotten. However undignified, and even illegal, this method of evading the physician may be, it is wretchedly common. 'Give me something for my headache,' 'for rheumatism,' 'for stomachache'; 'give me a dose of antipyrine,' 'of chloral,' etc., are the demands made of the druggist many times every day. He rarely refuses.

"The last and lowest depth is the hospitals and dispensaries, emulous of each other, and running a competitive race for patients. In the letter of our New York correspondent published July 18th we see how the patronage of well-to-do people is sought by the attendants of clinics founded 'for sweet charity's sake,' medicine and advice being dispensed gratuitously to those with no claim or right to them, to the degradation of the patient, with injustice to the young and struggling physicians, and in defiance of the objects of those bequeathing the funds. As regards a large proportion of American out-patients, it must be admitted that they are well able to pay something for their medical treatment, however small the amount might be. The self-respecting visiting and resident physicians of these charitable institutions should spontaneously do away with the abuse, and form rules and establish habits that will bar out those that could pay. It is quite beyond comprehension that members of a noble guild like ours should be so destitute of *esprit de corps*, so reckless of the wrong done the younger members of the profession. Unless reform come spontaneously and quietly, it must sometime come from without and brutally. Those who supply the funds will learn of the way their charity is being used to wrong both patient and physician, and supplies will stop with a suddenness born of righteous indignation, but necessarily followed by other evils. Moreover, young physicians would be better than human if they stood calmly by and allowed their proper *clientèle* to go in crowds to the dispensaries and hospitals to be treated gratis by men whose practices are established. They will meet such useless and brutal competition by establishing other and rival institutions, or by taking up one or more of the methods before described. These things, as we have tried to show, are already well under way, and with true American earnestness, pushed by the facts of a rapidly increasing proportion of practitioners to population, as also by the growing poverty of the city masses—when war is fully declared, it will not be exactly 'war with rose-water.' The net result will be a sharp lowering of professional dignity, a ruinous cutting and reduction of professional fees, and the further entrance into medicine of commercial customs and auctioneer methods

"In the mean time, will those who have the remedy in their hands remain satisfied to let things drift, and drift, and still drift?"

The Seat of Puncture in Paracentesis Abdominis.—Trzebicky (*Archiv für klin. Chir.*, xli, 4), in performing paracentesis abdominis at the point of election—that is, midway between the umbilicus and the anterior superior spine of the ilium—wounded a large blood-vessel which gave such troublesome bleeding that the life of the patient was threatened. The hæmorrhage was arrested by compression of the common iliac artery. Incited by this experience, and by several reports of fatal bleeding following puncture at this point, Trzebicky conducted an experimental research upon a large number of cadavers. As a result of this he announces the following conclusions:

In the majority of cases paracentesis performed at a point midway between the umbilicus and the anterior superior spinous process of the ilium is perfectly safe, since neither the epigastric artery nor any large branch of this vessel is liable to be wounded. The artery commonly crosses this line at the junction of the inner with the middle third.

In a certain proportion of cases, however, the epigastric artery or one of its branches lies directly beneath the point of election.

The course of the epigastric artery is seldom exactly similar in the two sides of the body.

Since the artery runs within the sheath of the rectus muscle, its course depends mainly upon the position of this muscle. In case the two recti are separated by abdominal distention, the artery is displaced so that it lies very near the point of election for puncture. The rectus muscle does not, however, bear a constant relation to the artery. At times, even though the muscle is displaced to the side, the artery lies near the middle line.

Variations in the origin of the epigastric artery seem to have no influence on the course of the former vessel.

The artery is usually accompanied by a single vein.

Paracentesis abdominis should be performed either in the linea alba or in the outer half of the line joining the umbilicus and anterior superior iliac spine. In case the linea alba is selected, it is not important to keep strictly in the middle line, since there is an arterial branch which may be wounded if the trocar is entered, even slightly, to one side.—*Am. Jour. of the Med. Sci.*

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for July 31st:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	July 25.	1,515,301	947	82	..	..	..	..	..	11	23	19	12	5
Chicago, Ill.	July 25.	1,099,850	591	....	..	..	..	..	..	47	2	9	2	6
Philadelphia, Pa.	July 18.	1,046,964	499	....	..	..	..	..	..	7	2	4	3	2
St. Louis, Mo.	July 18.	451,770	181	....	..	..	..	..	..	1	..	2	..	....
St. Louis, Mo.	July 25.	451,770	174	....	..	..	..	..	..	7	1	5	2	2
Baltimore, Md.	July 25.	434,439	230	23	..	..	..	..	..	1	1	2	1	2
Cincinnati, Ohio	July 24.	296,908	109	15	..	..	..	..	..	2	2	2	..	....
New Orleans, La.	July 4.	242,039	136	7	..	..	..	.	.	2	..	..	1	....
New Orleans, La.	July 11.	242,039	111	11	..	..	..	..	..	..	..	.	..	....
Pittsburgh, Pa.	July 11.	238,617	108	9	..	..	..	..	..	2	1	3	1	....
Pittsburgh, Pa.	July 18.	238,617	150	7	..	..	..	..	..	10	..	1	3	4
Washington, D. C.	July 18.	230,392	124	14	..	..	..	..	..	..	..	4	..	2
Detroit, Mich.	July 25.	205,876	92	4	..	.	..	..	..	..	..	7	1	....
Minneapolis, Minn.	July 25.	164,738	58	....	..	..	..	..	..	2	1	2	..	....
Rochester, N. Y.	July 25.	133,896	52	5	..	..	..	..	..	1	..	..	..	1
Providence, R. I.	July 25.	132,146	50	....	..	..	..	..	..	1	..	..	..	....
Indianapolis, Ind.	July 11.	105,436	55	4	..	..	..	..	..	..	1	1	..	....
Indianapolis, Ind.	July 18.	105,436	47	4	..	..	..	..	..	..	1	..	..	....
Indianapolis, Ind.	July 25.	105,436	48	6	..	..	..	..	..	..	..	1	..	1
Toledo, Ohio	July 24.	81,434	32	4	..	..	..	..	..	..	..	..	..	....
Richmond, Va.	July 18.	81,388	63	3	..	..	..	..	..	4	..	6	..	....
Nashville, Tenn	July 18.	76,168	31	....	..	..	..	..	..	..	..	..	..	1
Fall River, Mass.	July 24.	74,398	55	8	.	..	..	..	..	..	..	..	1	....
Wilmington, Del.	July 25.	61,431	37	1	..	..	..	..	..	1	..	3	..	....
Lynn, Mass.	July 18.	55,727	16	1	..	..	..	..	..	..	..	..	..	....
Lynn, Mass.	July 25.	55,727	13	2	..	..	..	..	..	1	..	..	..	....
Portland, Me.	July 25.	36,425	13	....	..	..	..	..	..	..	..	..	..	....
Binghamton, N. Y.	July 25.	35,005	9	1	..	..	..	..	..	..	..	..	..	1
Yonkers, N. Y.	July 18.	32,033	17	....	..	..	..	..	..	..	..	..	..	....
Yonkers, N. Y.	July 25.	32,033	12	4	..	.	..	..	..	..	..	..	..	....
Mobile, Ala.	July 25.	31,076	9	2	..	..	..	..	..	1	..	..	..	....
Auburn, N. Y.	July 25.	25,858	7	....	..	..	..	..	..	1	..	..	..	....
San Diego, Cal.	July 18.	16,159	3	....	..	..	..	..	..	..	..	..	..	....
Rock Island, Ill.	July 12.	13,634	3	....	..	..	..	..	..	..	..	1	..	....
Rock Island, Ill.	July 19.	13,634	3	....	..	..	..	..	..	..	..	..	..	....
Rock Island, Ill.	July 26.	13,634	3	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.	July 18.	11,750	....	....	..	..	..	..	..	1	..	..	..	....

The Influence of Bitter and Aromatic Substances on Gastric Secretion and on Digestion.—The action of bitter and aromatic substances on gastric digestion has been a subject of much controversy, although their use in therapeutics has been long established. Some believe that bitters stimulate the stomach to greater secretion of mucus, and interfere with the digestion of albuminoids; these consider that any increase in the secretion of gastric juice resulting from their use is a pure supposition. Others, again, consider that bitters excite the function not only of the gastric glands, but also of the muscular walls of the stomach. Professor G. Marcone (*Riforma medica*, June 8, 1891) has endeavored to settle the question on a sound physiological basis. He has studied the action of sixteen drugs belonging to the various groups of bitters, aromatics, and stimulants, and finds that all, without exception, cause increase of the secretion of gastric juice. (1) Mixing the drug with food, prepared always in the same manner: (*a*) the period of digestion is shortened; (*b*) the quantity of gastric juice is increased; (*c*) the movements of the stomach are more active and more efficient; (*d*) the gastric juice, increased in amount, retains its full digestive power. (2) Introducing the drug into the empty stomach: (*a*) the quantity of gastric juice is increased; (*b*) the juice retains undoubted digestive power. These results were verified by control observations made with distilled water in place of drugs. (3) In order to ascertain, if possible, whether the action above observed was of local or reflex origin, the vagi were divided in the neck previous to the introduction of the bitter substances. Under these circumstances (*a*) the contents of the stomach did not increase, and, (*b*) notwithstanding an increase of acidity, the digestive power of the juice was much diminished. Marcone therefore concludes that the greater part of the effect of bitters is due to stimulation of the vagus endings in the stomach, whence by a reflex action are produced both the increased secretion and the increased peristalsis.—*Suppl. to the Brit. Med. Jour.*, July 4th.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

SOME CLINICAL FEATURES OF STONE IN THE BLADDER.*

By L. BOLTON BANGS, M. D.,

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It is not my intention, gentlemen, to trouble you with the details of symptoms which are familiar to you, nor with accounts of operative procedures, but simply to call your attention to some features which frequently mask the diagnosis of vesical calculus, and which also lend some interest to the conduct of the cases.

It is in the experience of most of us to have had cases giving unmistakable evidence, so far as the subjective symptoms are concerned, of the presence of stone; but, upon examination and repeated searching, the crucial test—namely, that of touching it (or of seeing it)—was not obtained, and doubt was cast upon the case until some further or more remote exploration revealed the true condition of things. In illustration of this, as well as of other points, I venture to present a few cases, which may seem simple to you and possibly be like "the thrashing of old straw," but which will serve as a text for my paper and as a means of drawing out your experiences and criticism.

From an experience of thirty-one cases of calculous disease of all kinds (*i. e.*, uric acid, phosphatic, oxalate of lime, in adults and children), I have selected the following as presenting some of the difficulties in diagnosis to which I wish to allude, and as illustrating somewhat the factors which necessarily decide the choice of operation for a cure.

For convenience they are designated numerically:

Case I is that of a man, aged seventy-seven, who for ten years had had no voluntary urination whatever. He had been compelled to pass a catheter every two hours during the day, and often with the same frequency at night. Being a man of temperate habits and of comparative ease of mind, he had been rather unmindful of his physical conditions, and had gone on year after year until, within the two or three years before coming under my observation, he had begun to have vesical pain, occasional hæmaturia, and the appearance of mucus and pus in his urine. He had been under various medical advisers, and the diagnosis of vesical catarrh due to senile hypertrophy of the prostate had been made. Finding that his symptoms had been increasing in intensity, notwithstanding his general good health and the excellent medical care which he had been under, I suspected that there might be more present than the conditions which had already been diagnosticated.

The diagnosis of prostatic hypertrophy was confirmed, and his bladder searched for stone with negative results. He had great tolerance to the introduction of instruments; his bladder was apparently readily accessible in all its parts and betrayed no evidence of sacs or pockets, and I wondered at my own failure and at that of others to clear up the diagnosis. He was instructed as to the necessity for ablution of his bladder, and I directed him to report for further exploration, intending to examine him with the cystoscope. After several months he reappeared, having in the mean time been under other medical advice, and was now requiring the use of the catheter every half-hour; was subject to constant as well as sharp and sudden seizures of pain, which prostrated him, and blood came with the first gush of urine through the catheter. Remembering the care with which I had searched him before, and feeling certain that, notwithstanding my failure and that of distinguished surgeons to whom he had applied, there must be some source of error, I determined to put him to bed and to refrain from further exploration until his bladder had been rendered comparatively insensitive and his urine free from mucus. This was done, and the first introduction of the searcher immediately and easily ascertained the presence of stone. A phosphatic stone weighing about a drachm and a half was removed by the operation of litholapaxy in about half an hour. His recovery was uneventful, complete, and calls for no comment.

Now, here was an individual whose conditions ought to have made the diagnosis of stone easy, simple, and early. Competent men had failed to discover the source of his trouble until his condition was approaching that which might be termed critical, and I ask, Why was it? My own opinion is that at the very outset I should have taken the steps which I subsequently employed—namely, that of repose, frequent ablution of the bladder, and then careful searching at the proper moment; for, just as soon as the urine had been freed from the excessive degree of catarrhal evidences, the stone was discovered with the greatest facility. The probability is that the surgical error made by those who examined him in turn was that of regarding him as an ambulatory patient, because he could be so easily examined in our respective offices. Failure resulted until his condition became such that putting him to bed was a necessity, and then success followed. In this case I simply happened to be the "last man."

Case II.—In further illustration of this point, let me call your attention to another case which also had with it greater difficulties, and, unfortunately, terminated unfavorably.

This patient was aged only fifty-six, a comparatively robust and hearty man. For several years he had had a history of painful and frequent urination, but for about a year past had suffered extremely from pain in the perinæum, over the pubes, and throughout the length of the urethra, which was most severe just before urinating. His symptoms steadily increased in intensity, excepting when he was at some one of the mineral springs, where (by drinking the waters and by a life of repose) he obtained relief, but almost immediately relapsed after leaving these health resorts.

A stricture in the penile urethra had been looked upon as the cause of his sufferings and had been cut with the expectation of giving relief, but without result. He had been repeatedly searched by a gentleman whose name is a synonym for skill, and had as often been reassured that there was nothing to account for his symptoms, excepting a moderate amount of hypertrophy of the prostate with severe vesical catarrh. For this he had had the neck of his bladder "stretched," and had had sounds passed through his urethra as often as three times a week. All this aggravated the patient's condition, which had grown persistently worse, and each act of urination was now accompanied by excruciating pain and his urine was reduced to about twenty-eight ounces in the twenty-four hours. In this state he came under my observation.

Having this history, and knowing that he had received the best of care, I was at a loss to account for the failure in diagnosis, and refused to examine him or to do any instrumentation until he had subjected himself to the simple measures of prolonged and absolute rest, together with frequent ablution of his bladder. His urine, besides being of a high specific gravity, contained much mucus, pus in abundance, and was ammoniacal in reaction. The bladder was exceedingly irritable; he was urinating from every half-hour to an hour, accompanied by forcible tenesmus; and, in spite of his robust constitution and general firmness of character, he was in a greatly demoralized condition. About two weeks in bed, together with washing the bladder with a simple saline solution, and the daily use of an emulsion of iodoform, relieved the irritability of the bladder and diminished the mucus and pus. The first exploration of the bladder was then made. It was necessary, I found, on gentle attempts at introducing the searcher, to give to my silver instrument a double or posterior curve in order to surmount the prostatic obstruction which was ascertained to be present. This being done, the searcher slipped in with perfect ease, and instantly, without any effort at traversing the bladder, a stone of apparently large size was felt. It could be easily moved, and imparted to the instrument a sensation that either it was of great size or that another stone was in immediate contact with it. The diagnosis was thus made perfectly clear. Subsequently attempts were made to measure the stone by the introduction of an ordinary lithotrite of medium size, but the prostatic obstruction was such that, although the instrument could be entered, it barely touched the stone, and grasping of the latter was difficult if not impossible. The difficulty of instrumentation in this case, even when aided by anæsthesia and by proper distention of the bladder, would, it seemed to me, necessarily involve such traumatism of the latter, together with the possibility of leaving a fragment to still further irritate the diseased urinary organs, that I determined upon suprapubic lithotomy. This was accordingly done and five stones, weighing 295 grains, respectively, were removed. The mucous membrane was found to be purple in color and exceedingly soft, bleeding upon the slightest touch of the finger. A prostatic outgrowth (chiefly median, but also left lateral) also bled freely upon the slightest touch. The patient was immediately relieved from pain and made very comfortable, but his urine gradually diminished in quantity and he died uræmic on the sixth day.

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* Read before the New York Surgical Society, March 14, 1891.

This disaster, I am confident, might have been avoided if an early diagnosis of stone had been made, and, considering the knowledge and skill of those who had had him in charge, I am led to ask whether it was not something in the condition of the patient which rendered an early diagnosis impossible.

It is possible that an explanation of such cases may be found if we recall the process of stone formation as advanced of late years by Mr. William M. Ord and by H. Vandyke Carter.

The "molecular coalescence" of Rainey was confirmed, as you will remember, by the scientific experiments of Ord and by the microscopic researches of Vandyke Carter. It was shown that calcareous aggregations would not take place excepting in the presence of colloid material which is found to a marked degree in the kidney and also in mucus and pus. If an inflammatory condition be excited in the urinary organs, the colloids become increased in quantity and density and the salts of the urine are deposited in laminæ with great rapidity. The factors of inflammation—namely, prostatic obstruction and residual urine, with their products of mucus and pus—being present in these cases, I am of the opinion that during the formation of the calculi the latter are so covered with mucus, etc., as to mask sensations communicated to searching instruments, and hence are not diagnosticated till they reach a large size or till measures are taken to modify the vesical catarrh and remove the coating. At all events, it was only after desistance from instrumentation, followed by absolute rest and abundant ablution of the bladder, that the diagnosis was made.

Case III.—This patient was a gentleman, aged fifty-four. Seven years before coming under my notice he had begun to have pain at the head of his penis on micturition, and some pain in the small of his back. This continued for four years without very much change, when he began to have frequent urination, together with some tenesmus at the end of each act, and associated with these was a sudden desire to urinate, seizing him at most inconvenient times. Finally he was examined and a large prostate discovered, together with a certain amount of residual urine. He was then put upon a systematic use of bougies, which were gradually increased in size, once in every three or four days, and finally were passed several times during each day. This was continued for a year till he had to strain considerably even to start his stream of urine, the other symptoms of pain and tenesmus persisting. His urine having now become bloody, cloudy, and ammoniacal, he was directed to wash out his bladder, which improved his condition greatly, pus and blood entirely disappearing from the urine.

About a month before he came under my observation his left testicle began to swell, became heavy and painful, and finally a sudden chill was followed by a rapid increase in the swelling and painfulness of the organ, which kept him in bed for ten days. He then had a remission in the state of his testicle, but a long journey brought on the symptoms again in a subacute form.

At this time he remained under my care only long enough to recover from the orchitis, and then returned to his post of duty.

About a year later he again came to me with a varied history. With his testicle he had had no further trouble, but his bladder symptoms were now increased, with marked intensity. He was urinating frequently and painfully; his urine was bloody and loaded with mucus and pus; he was in constant pain; and there was some œdema of his lower extremities. He had been examined frequently by competent men in this and a neighboring city, but with negative results. Instrumentation by the passage of sounds had been resorted to, but this only served to aggravate his already miserable condition. I refused to have anything to do with him unless he would go into a hospital and stay there long enough for me to *prepare* him for an examination, which under such conditions should be regarded in the same category as an operation. He consented, and after a few days of rest and careful irrigation of his bladder he was etherized. A Thompson searcher then easily detected calculus. As the condition of the bladder had greatly improved, and as there was trifling obstruction on the part of the prostate to the introduction of instruments, and as the stone was probably of the phosphatic kind and therefore soft, I determined upon the operation of *litholapaxy*, which was accordingly done, and a phosphatic stone with a uric-acid nucleus, weighing about three hundred grains, was removed.

It is not necessary to trouble you with the details of the operation. The prostatic obstruction proved to be greater than was at first anticipated, rendering the operation exceedingly laborious and prolonged. On the third day he passed a number of small fragments, and, as his urine was beginning to have an offensive odor, his bladder was irrigated frequently with 1-to-

40,000 solution of bichloride of mercury. The symptoms were markedly ameliorated, and, as his leave of absence was nearly at an end, it was necessary to consider the question of his return to duty. From the persistence of certain symptoms—such as pain at the head of his penis, frequent urination, and the undue amount of mucus and pus in his urine—I felt convinced that a fragment had been left, but careful searching failed to reveal it. I therefore came to the conclusion that repose in bed after the termination of his journey, together with frequent washing, would soon reduce the mucus about this fragment so that it could easily be discovered.

Under these circumstances he left, carrying with him a letter of explanation from me to a professional correspondent in a distant city. This surgeon subsequently easily found and removed a fragment weighing fifty grains. I mention my failure to find this fragment for the purpose of calling attention to the fact that, even in a comparatively young man with but moderate hypertrophy of the prostate, there is great possibility, indeed extreme probability, of leaving a fragment after the operation of litholapaxy to further torment and jeopardize the patient. It seems to me that if I could have fully realized all the conditions of this patient before the operation, it would have been wiser to have done the suprapubic operation and have removed all traumatic influences from the bladder by a speedy and clean surgical procedure. It emphasizes the necessity for a closer discrimination in the choice of operation for the removal of stone from the bladder.

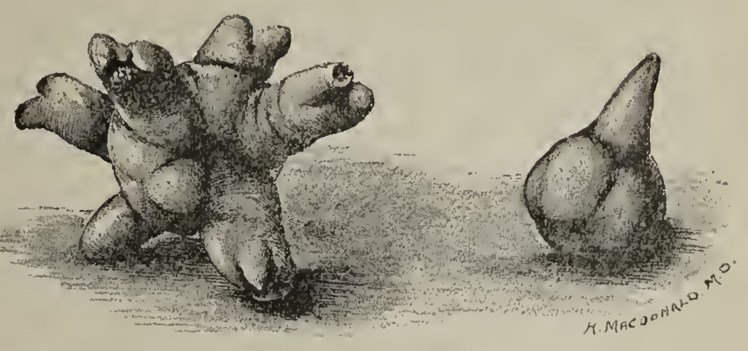
Case IV.—In further illustration of difficulties in diagnosis and of unusual clinical symptoms, take the following case: A temperate man of excellent general history, aged sixty-nine. For several years he had had paroxysms of dyspnœa, especially at night, for which no organic cause in his chest could be discovered. For several years he had had intense pain in his right leg and heel, which had been pronounced to be the premonitions of locomotor ataxia. Within a few weeks before coming under my observation slight œdema of the right foot appeared, and a small ulcer had developed upon that leg. For an indefinite time, say some years, he had had frequent urination, most marked at night, some hesitancy and straining during the act, and occasionally the stoppage of the flow of urine. The stream was small, the last few drops passing without control. Sometimes his urination was precipitate, and he had to hurry to the urinal. He had had one attack of hæmaturia.

On the supposition that hæmorrhoids were the source of his troubles, he had undergone, some two months before I saw him, an operation for their radical removal, but without avail. His symptoms persisted, the pain in his leg and heel became extreme, and he sought my advice.

Although his chief suffering seemed to be in his leg, my attention was directed to his bladder, but attempts to search it were made extremely difficult and almost impossible by a deviation and elongation of the urethra due to senile hypertrophy of the prostate gland. However, by a series of rotary and depressing manœuvres, a searcher was finally introduced into the bladder and calculus detected. In view of the difficulties of instrumentation in this case, although there was but slight vesical catarrh, suprapubic lithotomy was performed, and two calculi removed.

As they are peculiar in form and size, making a unique specimen, a cut of them is appended. The patient's recovery was uneventful and rapid.

The clinical features of this case to which I specially call your attention were the attacks of dyspnœa and the intense pain in his right leg and heel, which immediately disappeared after the operation and have not returned, although he has been under my observation for over two years.



This gentleman was a professional man of a highly refined and delicate organization, which no doubt rendered his nerve centers susceptible to peripheral irritations long before a marked catarrh of the bladder was excited by the presence of the calculi. Attention was called to such pains, and several interesting cases quoted, by Dr. T. B. Curtis in the *Boston Medical and Surgical Journal* of April 17, 1881, but no explanation was offered of their physiological relation to vesical irritation.

Case V may interest you, and may also enlighten us as to some failures of diagnosis, the explanation being in the shape of the stone, which I also show you. He was a healthy man of forty-five years of age, and gave the usual symptoms of vesical irritability, painful and frequent urination, with the presence of blood in the urine. The first searching revealed a stone; but before any operative procedure was undertaken it was deemed best to search again, and also, if possible, to measure the stone. All subsequent searchings failed to detect the stone. No matter how carefully conducted, nor in what position, nor with distention of the bladder, the stone entirely eluded search. Being confident, however, as to the first exploration and his symptoms persisting, together with the increasing irritability of the bladder, which resented instrumentation to a great degree, I resolved upon suprapubic lithotomy, and accordingly performed it. On opening the bladder and introducing my finger, the failure to find the stone was immediately explained. As you see, it is rectangular and flat, and was discovered on the anterior wall of the bladder, immediately behind the pubes, where it had been retained either by adhesions to the mucous membrane or by the unequal contraction of an irritable bladder. But why my instruments failed to reach it, unless they carried forward each time a fold of mucous membrane which interfered with the impinging of the metal upon the stone, I am at a loss to explain. This man's recovery was also rapid and uneventful.

Case VI has some bearing upon the second topic which I present for your discussion—namely, the choice of operation. It has also a clinical feature similar to the one just presented—*i. e.*, pain in the extremities, which disappeared after the removal of stone.

He was seventy-four years of age, and his symptoms began three years before coming under my observation. They consisted of painful, frequent, and bloody urination, together with the sudden stoppage of the stream. He went on in this way for two years, when he was examined by a competent surgeon, who ascertained the presence of stone and removed it by the operation of litholapaxy. He had temporary relief only, and six weeks after the operation passed two fragments—one a quarter of an inch by three eighths of an inch, and the other three eighths by half an inch in size. Pain and the frequency of urination continued, together with *pain in both arms.* After another year of these symptoms he came under my observation.

On searching him, which was done without difficulty, although he had considerable prostatic outgrowth, a large stone was found. His urine at this time was alkaline in reaction, contained a large amount of pus, blood, mucus, and different kinds of epithelium. In view of the prostatic enlargement, the condition of his bladder, his age, and the fact that already under treatment by litholapaxy fragments had been left in the bladder, I thought it best to perform the operation of suprapubic lithotomy. This was accordingly done, and three large tetrahedral calculi were removed. On further digital examination of the bladder, on the posterior wall, a little to the right and behind the prostate, a pocket was found in the mucous membrane which just admitted the tip of the index finger. In the bottom of this pocket a stone was found. This was removed with a blunt scoop. The further course of this case was uneventful, excepting that he had some hallucinations, and it was several weeks before he was mentally restored.

He had also a mental condition which I have seen in one other case following suprapubic lithotomy—namely, a dread lest the least motion on his part should "tear open," as he described it, the wound in his bladder. Indeed, one of these patients suffered so from this fear that it amounted to *terror*, and it was almost impossible to get him out of bed or even to persuade him to sit up in bed. Only after resolutely standing over him and compelling him to get up and assume the standing posture, and repeatedly explaining to him the impossibility of such an accident, was his fear finally overcome and his convalescence established.

This may be but one of the mental conditions which we know make their appearance after serious operations.

The two points which may properly be suggested for discussion are (1) the early diagnosis of stone, and (2) the choice of operation for its removal.

On the first point I submit the question, Why, among equally competent and experienced surgeons versed in all the methods of exploration, as carefully employed by one as by the other, should there be any difference of opinion or doubtful diagnosis? Why should one man fail to find the stone which the other instantly discovers?

The answer is found in the condition or conditions of the patient at the time at which the exploration is made; and, with a view to throw some light upon this, I have presented these typical cases from a clinical standpoint only.

The choice of operation for the removal of stone from the bladder must, of course, in these days lie between litholapaxy and some form of lithotomy.

Without entering into the question as to which form of lithotomy should be performed, permit me to limit the discussion to suprapubic lithotomy and litholapaxy (or crushing at one sitting).

It may be urged against lithotomy that the operation necessitates loss of blood, liability to infection, damage to the peritonæum, injury to the bladder, and perhaps a marked degree of shock resulting in a greater mortality.

In a young man with a moderate degree of vesical catarrh, a soft stone of moderate size with no prostatic obstruction, I would say that the operation for litholapaxy was clearly indicated. But if, on the other hand, a case presents itself, such as Case II which I have reported to you this evening, with a marked degree of vesical catarrh and moderate degree of prostatic obstruction, so that instrumentation is effected with difficulty, it seems to me that the safest procedure for that man is the one which the most speedily and most radically relieves him from the cause of his suffering.

Now, taking such a case as this as the type, although the walls of the bladder were exceedingly hyperæmic, there was no loss of blood that would have any effect upon his constitutional condition or his reacting power; there was no damage to the peritonæum; and the stones were removed immediately without the slightest danger of any fragments being left behind.

In support of this position take Case VI, of an old man with prostatic obstruction, upon whom litholapaxy had been done by skillful hands. The condition of his bladder was such that it was almost inevitable that a fragment should be left behind, and, indeed, *more* than *one* fragment was left, adding to the irritation of the bladder, already more or less injured by the crushing and washing instruments.

This is one of three cases of relapse following litholapaxy which have come under my observation within a short time. The anatomical conditions of these patients are such that, even with the most skillful care, a fragment may be left behind. Therefore lithotomy is preferable.

Answers to the objections to this operation naturally present themselves.

Under modern antiseptic care the liability of infection is reduced to a minimum. The peritonæum has been entered (I have done it myself without any unfavorable result), but it could only happen under extraordinary circumstances.

On the other hand, pinching and sloughing of the mucous membrane of the bladder wall have been known to take place during and after litholapaxy, and may possibly be a source of infection which can not be controlled as in an open operation. However, by delicacy of manipulation during the operation, and by thorough cleansing and antiseptic measures afterward, this danger may be avoided.

Hæmorrhage, if it occurs at all, must be from vessels of inferior size, and easily controlled, whereas hæmorrhage from the prostatic vessels and from the membrane of the bladder during the operation of litholapaxy may and does take place to a greater extent than from the severed vessels in the open operation. Further, in the open operation there is an opportunity to explore and investigate the interior of the bladder, so that encysted stones which may escape the most expert soundings may be seen and removed, as in Case VI, which I have reported. In this individual no cure could possibly have been effected by any crushing operation, for, besides fragments which had been left to increase in size, there was a diverticulum of the bladder from which the stone could not be removed without the aid of the senses of sight and touch.

As to the *fatality* of the two operations up to the present time, statistics are largely against the high operation, and hence I conclude that the *best* operation for the removal of stone must be determined by the conditions of each case.

Careful diagnosis, careful preliminary exploration as to the conditions of the bladder, size of stone, and constitutional state of the patient, must all be considered before a decision as to operation can be made.

31 East Forty-fourth Street.

TUMORS OF THE NASO-PHARYNX, PHARYNX, LARYNX, AND ŒSOPHAGUS.*

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In this paper I propose to deal only with such growths of these parts as have come under my personal observation.

Of fibroma of the naso-pharynx I have seen but one case, and that quite recently.

Fibroma is here, as in other parts of the body, of slow growth, pushing everything before it; extending into the neighboring cavities, producing absorption of both the soft and hard tissues. It is often called a polypus, as, like the latter, it starts from a pedicle, but, unlike it, it becomes attached to the surrounding tissues by inflammatory action. The patient to whom I a moment ago referred was a pale farmer boy aged nineteen. He said he had noticed the growth for eighteen months; for that long he had been unable to breathe through or blow his nose; of course the tumor had been growing much longer than this. He had the dead notes of Meyer, with all the symptoms of naso-pharyngeal obstruction. The rhinoscope showed a rather smooth, white, glistening growth springing from the basilar process of the occipital bone. He stood posterior manipulation well, as the pressure of the growth had no doubt paralyzed sensation somewhat. A short time before he came to see me he had had a dangerous nasal hæmorrhage to follow the insufflation of some mild powder by his home physician. The patient had the peculiar facial expression observed in cases of post-nasal obstruction; there was from the nose and pharynx an ugly secretion. He could not get any comfort from sleep, as he was from necessity a mouth breather, with all its discomforts. As soon as he fell asleep he would get on his back, with his mouth open, which would become very dry; his tongue would drop back and choke him, and up he would jump horribly frightened.

A diagnosis was easily made. Such growths should be handled gently, as they bleed very freely. The growth sent short horns into each nose posteriorly.

I decided if possible to remove the growth by means of the cold snare; as I expected, I found much difficulty in getting a wire around it. By taking a small malleable wire with a thread attached, I succeeded in getting through each nose from the front and pulled back a small tape and tied the soft palate forward. Another string was passed in the same way, and to this was attached the wire of the snare, which by traction was pulled up into the naso-pharyngeal space, and by manipulation with the finger was gotten around about half the tumor. The Jarvis snare, which I here exhibit, was used. After all traction possible had been made by the hand, I took a strong pair of gas-pliers and worked the screw as far as I could with it, but could not cut the growth through. After four hours of trial with this, I removed the snare, leaving the steel wire in position. I then attached my galvano-cautery snare handle to the steel wire, and, turning on the current slowly, had the part of the growth removed in about two minutes; the steel wire burned after the growth was cut through; the tapes were relaxed but left in position, prepared for hæmorrhage, which did not occur. Ten days or two weeks afterward I made an effort to get the remainder of the growth. Profiting by my previous experience, I of course gave up the cold snare. Instead I determined to use the galvano-cautery snare; the space was still much obstructed, and the platinum wire being very soft, rendered it impossible to force it around the growth. I took a piece of steel wire and passed it with the platinum wire into the barrel of the snare; at the top of the loop and some distance down each side I wrapped the two wires together with a fine silk thread, and had but little difficulty in engaging quite a large piece of the growth in the loop. I attached the platinum wire alone to the snare handle, knowing that, as soon as the current was turned on, the thread holding the two wires together would burn. The platinum wire burned through the growth easily, leaving but little beside the base behind. After this the patient breathed through his nose and could blow it freely.

Fibromata may disappear spontaneously or slough. Old methods of removal are much improved upon by later ones. "In fifty-eight cases reported by Lincoln, thirty-eight were removed by severe operations, such as resection of the submaxillary; only ten cases cured. Fourteen operated upon by the galvano-cautery, with eleven cures and three relapses." Says Thudichum (*Lancet*, January 31st): "Surgical literature contains many descriptions of a great variety of operations which were instituted for the removal of the tumors. There is no possible anatomical direction which has not been taken to get at the root of the evil, and all are avowedly mainly modulated under the fear of hæmorrhage. One can easily see that the means chosen were desperate expedients applied to cases judged to be equally desperate."

After the introduction of anæsthetics, during the last thirty years, a very common set of operations was the following: The first step was tracheotomy and the insertion of an inflated plug in the larynx. Next the nose was split up from tip to root; the nasal bones were broken aside or temporarily or permanently severed. The tumor was then attacked with forceps, scissors, and knives, and the bleeding was from time to time diminished by actual cautery. In this way the nasal meati might be cleared roughly, but the pharyngeal part could not be reached. This was therefore attacked through the mouth, the soft palate was divided, and the tumor—or rather as much of it as would yield—was cut away with scissors and twisted with forceps until a tolerable passage was produced.

Of the cases attempted to be thus treated a number were left uncompleted, owing to hæmorrhage; some operations were protracted, in hope of excising the tumor, over fourteen days, one known to me over thirty days, during which time the split nose was kept open. In fact, when John Bell described the operation as a "horrid scene from which most surgeons had to retire in confusion and dismay," he stated the bare truth. About a third of the patients succumb to anæmia; another third die from the immediate consequences —pneumonia and pyæmia; and about a third escape the death after a long and complicated run of septicæmia. Of these, many have relapses. Wutzer (of Bonn) had seventeen cases of relapse out of a total not stated. Nélaton added a special severity to the operation, with the intention of destroying the root, by removing permanently a portion of the osseous palate. Middeldorpf applied the electro-cautery to some such tumors, but he was confined to such as were pendulous and could be surrounded by the wire loop. For a tumor which filled the nostril entirely and adhered to a large surface he had no remedy. Moreover, he had no remedy for the profuse bleeding, which even the electro-cautery, as commonly used, allowed of in these cases.

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Hippocrates used a loop and extracted by evulsion or knife. Fabricius had a curved-blade forceps for seizing the growth. Celsus seized the growth with a hook. But enough of the old. Syme and Mott removed the superior maxilla. The method now is the galvano-cautery, galvano-cautery puncture, and electrolysis. I use cocaine combined with resorcin as a local anæsthetic. To prevent any bad constitutional effects from the cocaine, I give my patients one or two five-minim capsules of valerianic ether or sulphuric ether, which are by far the best preventives I know of. Whisky, of course, is good, but I prefer using as little of this as possible with my patients. Whereas I frequently have had bad constitutional effects from the local use of cocaine in the upper air-passages before I began the use of sulphuric and valerianic ether capsules, I have not had a bad symptom since. I believe the constitutional effects of cocaine are more rapid and more dangerous when the drug is used in the nose than when given by either stomach or hypodermically, on account of the superficiality and the close connection of the sympathetic system of the locality with that of the respiratory and cardiac systems.

I have seen one case of myxo-fibroma of the post-nose. It was in the person of a gentleman, fifty-five or sixty years of age, who had not been able to breathe through his nose for some years. It sprang by a pedicle from the left lower inferior turbinated bone. It was removed by means of a cold snare, by Dr. J. Solis-Cohen, in my office a year ago. The base of this, with a similar appearing growth of the septum, was afterward treated and removed by myself through the post-nasal space by means of the galvano-cautery.

Myxomata spring from the nose, fibromata from the pharynx, and the mixed form from where the nose and pharynx join.

Myxofibromata grow from a pedicle; are white usually; sometimes dark; are quite movable. They grow fast and stop when at a certain stage. They do not slough or disappear spontaneously.

The cold snare, the cautery snare, electrolysis, and the galvano-cautery puncture are the best means of getting rid of such growths.

A case of fibro-sarcoma I saw first some time ago was in the person of a pale, anæmic boy, about ten years old, who had not breathed through his nose for some months. He had been seen by others much earlier in the formation of the growth. When he came under my observation it filled completely the pharynx, sending horns into each nasal cavity, pushing the soft palate well forward, and extending down so far as to enable me to remove a large mass with a tonsillotome. It was quite elastic; when an attempt was made to pull it down with a pair of strong post-nasal forceps it would slip from the forceps and spring back with quite a noise into its bed. Scarcely any bleeding followed any of the operations, strange to say. Blood-vessels in the cut surface appeared plentiful, and the cut surface looked more like cartilage. To snare the growth was impossible. Suppuration of both middle ears, with deafness, occurred early in the disease. I finally decided to get rid of the growth by frequent punctures with the galvano-cautery knife, of which I must have made not less than seventy-five; this was followed by rapid shrinkage. For weeks after stopping the use of the cautery knife the growth continued to shrink. Mastoid periostitis and necrosis set in, which complicated matters very much. The little fellow's general condition fared badly. Nothing appeared to build him up. Chronic diarrhœa set in. He had an enormous appetite. The growth had about disappeared, when the patient had so run down that he was confined to his bed. He died the first of this month (January, 1891) of exhaustion. There were no glandular enlargements. I never had to use any anæsthetic in the treatment of the case until in the latter weeks, when I used cocaine and resorcin. The cold snare made no impression whatever upon this growth. The wire would cut through the barrel of the snare instead of cutting the growth. The diagnosis should be made by the microscope.

In the last few months I have seen, for the first time, a pure polypus of the pharynx. It was in the person of a young man twenty-eight or thirty years old, and had existed for several months. Lately it had bothered him much in eating and sleeping. It hung well down below the soft palate, and sprang from the pharyngeal tonsil by a pedicle. He was cocainized, and a threaded was needle passed through the base of the polyp; a cold snare was passed over the thread well up to the attachment of the pedicle, and the polypus was in this way easily removed. I exhibit it here to-night. It is now not over one third its former size, as it has been in alcohol. It was two inches and a half or more long, half an inch in diameter, and cylindric. No bleeding followed. The base was treated with the galvano-cautery. Polypi of the pharynx are not common.

I have seen two cases of sarcoma of the pharynx—one in the person of a physician, springing from the left lateral wall. The cervical glands were enlarged. There was no attempt made for its removal. The second case was in a man who said his right nose had been stopped for two years by a growth; it had been removed twice, but returned rapidly. The microscope showed it to be sarcoma. The cervical glands began to enlarge fifteen months ago. He soon passed from my observation. Sarcoma of the pharynx is more common in the male. In nineteen cases, fourteen of them were males. There is usually a nasty, bad-smelling discharge. General health suffers much. Such growths usually spring from the basilar process of the occipital bone. It is important to know its origin. If in nose, cervical glands do not often become involved. Small-celled sarcomata extend fast, large-celled slower, and fibro-sarcomata still slower. Prognosis unfavorable. When removed by radical cure many die on the table; better, through natural passage by galvano-cautery, snare, or electrolysis; better to split palate sometimes.

I have seen but one case of carcinoma of the pharynx. This was in the person of a gentleman, about sixty years old, from Pittsburgh. The history of carcinoma differs but little from that of sarcoma. The glands may become involved a little sooner. The microscope must make the diagnosis. Treatment offers nothing. Bosworth says: "A witty Frenchman said that the only treatment for consumption is by opium and lying," an assertion probably true in that day, "and which might equally well be made in regard to cancer" now.

Growths of the larynx are malignant and non-malignant.

The non-malignant are polypus (not common), fibromata (twice as common), myxomata (rare), cysts (not common), angeiomata (rare)—Dr. Norris Wolfenden, of London, reports one case of the latter in the August number of the *Journal of Laryngology and Rhinology*, 1888—lipomata (rare), and papillomata (very common).

The symptoms of a laryngeal growth depend upon its size and location. A growth on the vocal cords causes hoarseness; on the epiglottis, dysphagia; if large, wherever situated, dyspnœa; if situated above the cords, breathing is noisy; the most common symptom is alteration of the voice. There is usually but little cough and pain. The laryngoscope makes the diagnosis. Growths of the larynx are three times as common in the male as in the female.

I have seen three cases of papillomata—one in a boy six years old; the growth was removed by Dr. Lefferts, of New York, by thyreotomy. The second, in a man fifty or fifty-five years old, first removed by the late Dr. Elsberg, of New York, and afterward by Dr. J. Solis-Cohen, of Philadelphia. The third case has lately been under my charge. The patient is a boy sixteen years old, who has been hoarse all his life. He has numerous papillomata of the larynx. He has the most sensitive larynx with which it has been my lot to deal. I have used cocaine, twenty-per-cent. solution frequently repeated; applied chloroform, menthol, and ether externally by spray; and have given him over an ounce of bromide of potassium and bromide of sodium, and, besides this, gave him at the same time a small amount of chloroform by inhalation, and to this have added sucking of ice; have injected cocaine into the inner walls of the larynx, and still have the greatest difficulty in using instruments in the larynx, even with his eyes bandaged. I have, however, succeeded in removing six or eight of the papillomata. Papillomata of the larynx disappear spontaneously sometimes; are absorbed sometimes by pressure from intubating; are cured sometimes by the internal administration of arsenic.

Just after my location in Louisville I had two cases of cysts of the epiglottis. One, in a lady forty years old, was removed by Dr. Lefferts, of New York. The other patient was a young man, eighteen years old. I got rid of the cyst by the use of a solution of zinc chloride, one scruple to one ounce of water. Applied it six or eight times. There has been no return in either case. On July 9, 1890, Mrs. B., of Kansas, consulted me concerning an affection of her throat. She gave a phthisical history with loss of voice for four years. The laryngoscope showed quite a large polypus of the right vocal cord which hung some distance below. By forced expiration she could throw it above the cords. I had but little difficulty in removing the polyp with Professor Schroetter's laryngeal forceps. The base I treated with chromic acid. Her voice returned as soon as the polyp was removed, and sounded so unnatural to her as to frighten her. The polyp I exhibit here was over an inch long.

In a paper published in the August (1888) number of the *Journal of Laryngology and Rhinology* on Malignant Disease of the Upper Air-passages, by G. Hunter Mackenzie, M. D., he states that—

> "Malignant disease may originate in any portion of the upper respiratory tract. It is a common affection of the larynx, is rare in the trachea, moderately prevalent in the thyreoid gland. Of seven hundred and fifty cases of malignant new growths, six were carcinomas of the larynx, four of the pharynx, and five of the thyreoid gland. Within the larynx, epithelioma (squamous-celled carcinoma) is most frequently met with. Sarcoma of the larynx is a rare disease. Sir Morell Mackenzie has only met with five cases of it. Butlin mentions twenty-three cases as having been collected by him. Cylindrical or columnar-celled carcinoma is extremely rare, and only one case is reported by Butlin. Regarding other forms of malignant disease, it is probable, as pointed out by Lennox Browne, that the variety known s medullary or encephaloid is really a small-celled sarcoma, while the scirrhous is a spindle-celled or alveolar sarcoma.
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> "It is an interesting fact that Morell Mackenzie has never met with a case of secondary cancer of the larynx originating in infection; and, on the other hand, knows of only one case in which the original disease having been in the larynx, cancer has developed secondarily in other parts of the body. A case has been recorded by Rollier in which metastases in lungs, liver, and brain followed sarcoma and suppurative perichondritis of the larynx; and Hermann mentions an example of lympho-sarcomatous metastases to the larynx and trachea. Lennox Browne quotes several instances of metastases to the lumbar glands, kidneys, and liver, and believes that the pulmonary organs are more frequently affected than is usually supposed. . . . Of fifty cases of malignant disease of the larynx collected by Butlin, three had metastatic deposits in the kidneys, liver, and lungs, besides affections of various glands in each instance. These cases were all examples of epithelioma.
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> "Metastases to and from the larynx, especially the former, must, however, still be considered to be of rare occurrence.
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> "Primary cancer may originate at any point within the larynx, but is rarely infraglottic. Butlin found, in fifty cases of laryngeal cancer, that five were infraglottic. The poverty in lymphatics of this region, as compared with the aryepiglottic folds and the supraglottic area, is generally supposed to be, and doubtless is, the cause of this rarity. Regarding the precise seat of origin, M. Mackenzie found that, in fifty-six out of one hundred cases, one of the ventricular bands was the part first affected.

"Schwartz affirms that the epiglottis and the vocal cords are most frequently attacked. Butlin, who follows Krishaber and divides the disease into intrinsic and extrinsic, found that the intrinsic was much more common than the extrinsic, and that in the intrinsic variety the vocal cords, in the extrinsic the epiglottis, were the parts most frequently attacked. The tendency for malignant disease first to manifest itself on the left side had obtained occasional recognition from writers. Sarcoma in a child of seven and epithelioma of two years' existence in a child of three have been reported.

"Cases are from time to time recorded showing an apparent malignant degeneration of previously benign growths. Recently, Bryson Delavan has recorded a case in which malignant disease seemed to supervene on a catarrhal laryngitis, with pulmonary phthisis. Solis-Cohen mentions a case in which, after thyrotomy for a simple laryngeal papilloma, epitheliomatous disease developed in the cicatrix of the operation wound, while the interior of the larynx remained free. An example is recorded by Schnitzler of a papilloma, which had been removed and the base burned with caustic, being followed by carcinomatous disease and perichondritis. He could recall, however, only three such instances in his extensive experience. Stoerk believes that this malignant transformation is hastened by endolaryngeal operations, especially by burning. Bohmer narrates a most interesting case of this malignant degeneration. A small portion was removed from the growth in the larynx, and under the microscope was found to be a simple papilloma. The tumor was afterward extirpated, and now it presented the typical microscopical characters of carcinoma.

"Schnitzler further reports a case of what may be called double transformation—*i. e.*, an example of a benign papilloma, which changed first into a carcinoma and then into a sarcoma. Such facts have necessarily an important bearing upon the value to be attached to the microscopical examination of portions of laryngeal neoplasms removed for purpose of diagnosis.

"The glandular affections in cancer of the larynx merit some notice. It has been already remarked that metastases to distant glands—*e. g.*, the lumbar—have been noted, but it is the cervical, laryngeal, and tracheal glands which are most commonly affected. Butlin asserts that sarcomata do not affect the glands, for the reason that sarcomata owing their origin to the proliferation of the cellular elements of the connective tissue, the solid structures swell and cause a diminution in caliber of the lymphatic vessels, which proceeds to their complete obliteration and renders them incapable of transmitting the infective material of the tumor. Browne controverts this view, for in three out of four cases under his notice glandular complications were present.

"Glandular enlargement may be present, and may not be detected during life. Butlin himself records a case with apparently only one enlarged gland during life, but on autopsy half a dozen similarly affected were found under the muscles.

"Cancer of the larynx may coexist with tubercular and syphilitic disease. Sokotowski has recorded two cases of laryngeal cancer with pulmonary tuberculosis. Semon has also witnessed this combination of cancer and tubercle. Bryson Delavan's case of malignant disease with catarrhal laryngitis and pulmonary phthisis has been already referred to. The writer has met with an undoubted case of cancer accompanying tertiary syphilis of the larynx."

It has been my misfortune to see several cases of cancer of the larynx. The first was some years ago, the history of which I have lost. It was a case of epithelioma. When an operation was spoken of the patient disappeared.

On December 14, 1889, J. M., a German, came to see me, saying he had had throat trouble for two months. There was considerable aphonia and dyspnœa. There was great œdema over the arytænoids and the ventricular bands. This œdema disappeared under steam inhalations, when it could be seen that a growth existed in the post-wall of the larynx. This afterward broke through into the larynx. It was an epithelioma. He refused operative treatment, and died suddenly some weeks afterward. He had enlargement of one gland under the left ear.

S. T., of Indiana, consulted me February 18, 1890, with the following history: Has had sore throat since June a year ago. Pain on swallowing. Lost his voice four months ago, but had been improving up to two months ago. Epiglottis is greatly swollen and pushed to the right. Some cervical glands were involved early in the disease. The growth proved to be sarcoma. All treatment was refused. Mr. T. lived four or five months.

J. R. D., aged fifty-six, a farmer, came to see me August 13, 1890. The first of last March was taken with severe pain in left side which lasted a few days. As he recovered from this, his throat began to trouble him; as he had been riding a great deal, thought it was a cold, and treated it himself for two weeks, when he consulted his brother, who is a physician. General health then good. Family history excellent. Neither phthisis, cancer, nor syphilis in family. Gives no specific history. Larynx externally enlarged. Chain of enlarged glands each side. Suffers much from dyspnœa and painful deglutition. In weight has gone from 150 to 115 pounds. Epiglottis ulcerated away. Ulceration of lateral walls of larynx. I removed with a pair of cutting forceps quite a large piece of the ulcerated surface, which the microscope showed to be small-celled sarcoma. Mr. D. is still living.

Dr. Ray reported a case of epithelioma of the larynx some time ago which was first under my care during my term of service at the City Hospital. The man's breathing was so difficult that I attempted to tube him. The tube did not reach low enough to give him relief. My service ending the next day, he passed into the hands of Dr. Ray, who had Dr. Vance perform tracheotomy, which also failed to give relief, the disease extending too low. The man died in a few days. His larynx, I think, was exhibited to this society.

Operations upon the larynx for malignant disease have been performed quite frequently. A review by Sir Morell Mackenzie, of London, in the September, 1890, number of the *Journal of Laryngology and Rhinology*, of two papers—one by Fauvel and Saint-Hilaire, and one, On Radical Operations for the Cure of Intrinsic Carcinoma of the Larynx, by Henry T. Butlin—appears to me to be of enough interest to give extracts from here. Fauvel and Saint-Hilaire base their paper upon the statistics recently published by Eugene Kraus in the *Allgemeine Wiener medizinische Zeitung* of April 15, 1890:

"One hundred and sixty cases of total and eighty of partial extirpation are here recorded. In one hundred and forty-two cases only was total extirpation performed for carcinoma. Of these cases, the patients were ten times lost to observation. Fifty-seven patients died during the few weeks immediately succeeding the operation (from pneumonia, pleurisy, septicæmia, etc.); thirty-eight times recurrence took place within a year; five times recurrence took place more than a year after the operation (in one, thirteen months; another, two years and a month; the fourth, two years and seven months; and the fifth, three years and four months). In eight cases death occurred during the first year from various affections. In twenty-four cases the result was good, the patients having survived more than a year without recurrence. This gives a total of eighteen per cent. of cures and forty-three per cent. of deaths from the operation.

"Sixty-six partial extirpations have been performed for cancer (fourteen times for other causes). Eleven times the patients have been lost to sight after operation; twenty-three times death has occurred within a few weeks of operation; twelve times recurrence has taken place within a year, and twice beyond a year (one in thirteen months and one in sixteen months); twice death has occurred during the first year from non-cancerous affections; and only in sixteen cases has the result been good—the patients observed for longer than a year free from recurrence.

"The comparison of the results shows a little in favor of partial extirpation—viz., twenty-nine per cent. cures in the latter operation as against eighteen per cent. in total extirpation; but the mortality from the two operations is nearly the same—viz., forty-three per cent. in total and forty-two per cent. in partial extirpation. Fauvel and Saint-Hilaire think it justifiable to ask if the operation of extirpation of the larynx has not been somewhat abused, and if in many cases tracheotomy would not have been preferable, and point to the conclusion arrived at by the former in his work published in 1876, that by tracheotomy alone life is prolonged on an average in encephaloid cancer nine months and in epithelioma two years and a month—a conclusion which has been confirmed by Augiéras and Schwartz, who each arrive at an average prolongation of life of eight months from tracheotomy. Taking Kraus's tables, the mean duration of life of those one hundred and eight cases of unfortunate operation is two months and a half, or, if the cases which are fatal immediately after operation are eliminated, a mean of about five months is arrived at, a result below that afforded by simple tracheotomy. The same practical result follows partial extirpation, the immediate mortality of each operation being about the same.

"As to 'cures,' we are glad to find Mr. Butlin adopt the plan of regarding those patients cured only who were free from the disease at least three years after the last operation. A study of his collected cases shows that fifteen patients were alive and free from disease; or died of some other disease than cancer, at periods of from three to twenty years after the last operation. Compared with operations for extrinsic carcinoma, these results are most favorable. With regard to operations for recurrent disease, 'but little that is good can be said.'"

These operations proved fatal in some cases, which tallies with the experience of operations for recurrent malignant disease in most parts of the body. "The best hope of success—nay, almost the only hope—lies in the first operation. If this fails, 'there is little prospect of relief from surgical interference.' As to the choice of operation in individual cases of intrinsic carcinoma, Mr. Butlin urges that the smallest operation consistent with the widest excision of the disease and removal of a wide area of the surrounding tissues should be performed. In order to accomplish this, the larynx should be widely opened and examined. He does not approve of the modified laryngectomy proposed by Solis-Cohen, but looks for the greatest success in the future from operations directed to the freest excision of the disease and its surroundings, without reference to the removal of one half or the whole of the larynx."

"In most cases the removal of the cartilage and bones of the frame-work of the larynx in intrinsic carcinoma is wholly unnecessary; it is sufficient to expose the affected cartilage or bone, and cut away or scrape all the softened parts. Carcinoma invades bone with difficulty, and cartilage with still greater difficulty, and chances of recurrence in these parts are small."

A recent extract in the *Practitioner and News* reads as follows:

"III. General conclusions: 1. Extirpation of the larynx for cancer must be regarded as a fully justified surgical procedure, since it undoubtedly affords the possibility of a radical cure.

"2. Be the selection practicable, a partial extirpation should be preferred to a total one, since the former is less dangerous and more advantageous in functional regards.

"3. The operation is absolutely contra-indicated only in the presence of an extreme exhaustion, and in subjects older than seventy years. Neither enlargement of cervical glands nor the spread of the disease over the structures adjacent to the larynx can be regarded as absolute contra-indications.

"4. To secure most satisfactory results, the operation must include such steps as (*a*) a preliminary tracheotomy; (*b*) insertion of Kahn's or Michael's tracheal cannula; and (*c*) a preliminary laryngo-fissure.

"5. As far as possible, the operation should be followed by the insertion of this or that artificial vocal apparatus. Bruns's artificial larynx should be preferred to Gussenbauer's.

"6. All accessible recidives occurring after the extirpation should be similarly subjected to a surgical treatment.

"7. The strikingly more successful results obtained from the extirpation during the last eight years (in comparison with the preceding eight years) must be attributed to a better (aseptic) management of the wound, and to the use of more perfect tracheal tubes."

From consideration of the cases collected, it is impossible to avoid the conclusion that the life of a patient upon whom complete excision is performed is very precarious, and that he is more liable to bronchitis, pneumonia, or accident, and that the comfort of the patient is also seriously affected. Though recurrences are greater in the table of thyreotomies, the explanation is that many cases thus operated upon were wholly unfit for so modified an operation, and there is every hope that the cases of the next ten years will tell a very different tale in this respect, for these are the very cases in which greater experience and improved diagnosis will have their effect.

Morbid growths, carcinoma excepted, are not frequent in the œsophagus; they are often extensions of the disease in neighboring organs (Cohen).

I have seen two cases of tumor of the œsophagus—one in the person of Mr. M., aged seventy-nine, with the following history:

He had noticed a growth in the gullet for twelve years. Three years ago a tumor was removed by Dr. Yandell. It had now returned. It troubled him much in swallowing solids. It occasionally produces nausea and is ejected into the mouth. He would grasp it with his teeth but would soon have to let it go. I endeavored to make him vomit it up by manipulating his pharynx, but failed. I tried to get it up with the horse-hair bougie, but again failed. Two or three weeks afterward he came to see me, having with him a lot of sulphate of zinc to take and a large twine cord to catch the growth with when it came up. Sulphate of zinc in large doses in warm water failed to vomit him. I then injected into his forearm apomorphine, one sixth of a grain, which vomited him in about two minutes. The growth came up and was caught with a volsella, and cut off with the cold snare.

The growth, I think, is a mucous polyp. It was originally five inches long, one inch in diameter, and cylindric, with a constriction near where it was cut through. I do not know from what part of the gullet it sprang. I present the growth here to-night. Last week a young man from Owen County, this State, came to see me, saying there was something in his throat which prevented his swallowing solids. He said it had appeared thirteen months ago suddenly one night, and that it had remained ever since. He was losing weight but little. I introduced a good-sized bougie, which met with some obstruction an inch or two from the upper end of the gullet. The bougie passed to the left and down with but little exertion; on withdrawing the bougie, it remained in a curved position, the convexity being to the patient's left. I endeavored to reach the growth with my finger, but it was too far down. I then used Leiter's panelectroscope, which I exhibited to this society a year and a half ago. I placed the patient in my operating chair, with his head in an exaggerated tracheotomy position, nearly at right angles with his spine. The panelectroscope tube would pass in but a couple of inches, but there could be seen at its end a red globular mass, the character of which I could not tell. Its sudden appearance, and no progress, as spoken of by the patient, is possibly not true. No operation was advised, as he said he was getting along very well on fluids and semi-fluids.

OBSERVATIONS ON TUBERCULIN
AT THE MONTEFIORE HOME FOR CHRONIC INVALIDS.
COMPARATIVE MERITS OF HYDROTHERAPY AND GENERAL TREATMENT.*

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On December 16, 1889, the injections of tuberculin were initiated in the Montefiore Home, and they have been continued up to the present time.

The number of cases selected was gradually increased until twenty-eight were under treatment. The object was entirely experimental—viz., to prove or disprove, by fair tests and accurate observation, certain therapeutic propositions of Robert Koch which he and his adherents had promulgated at that time.

Coming from so authoritative a source and bearing upon such vital propositions, the utmost care was exercised in order to exclude all bias or other prejudicial element. The cases were selected by the capable resident physician, Dr. Max Rosenthal, who had been familiar with their histories for a considerable period. The cases included males and females in the first, second, and third stages of phthisis, some of which had been benefited, others which had remained unchanged, and others which had grown worse under the routine treatment which I had instituted during recent years. The latter consists of good food, fresh air in abundance, exercise, rain-baths, cod-liver oil, creasote, and anodynes if needed, and under it our results have been extremely satisfactory, several patients being discharged cured and recovered every year. Of the twenty-eight patients, I turned twelve females over to one of my colleagues, who, *after three weeks' careful treatment, became dissatisfied with the result and abandoned it.*

Aiming at the utmost accuracy in this experiment, I did not continue the treatment of the abandoned cases, and I now confine my remarks to *sixteen patients* that were under my constant daily treatment for six weeks, and, after their reactive tendency and other conditions insuring their safety were ascertained, they were placed under the management of Dr. Rosenthal, but continued under my supervision.

A few brief notes of illustrated cases only will here be furnished to facilitate deductions. They are taken by Dr. Rosenthal from the records:

CASE I. *Case for Diagnosis; Recovery.*—I. D., aged thirty-six years, ill two years and a half. Had hæmorrhage two years ago; since then, night-sweats, cough, expectoration, and pain in left side. Has been treated twice at Mount Sinai Hospital for phthisis.

Physical Signs.—On admission, dullness over left apex, impaired breathing; pleuritic friction râles on right side along axillary space. Weight, one hundred and sixty-two pounds and a half.

Treatment.—General sustaining measures, with daily rain-bath at 65° for thirty seconds; damp compresses to chest.

Result.—Improvement of all symptoms, and gain of fourteen pounds and a half during ten weeks.

Tuberculin Injections.—December 16, 1890.

Physical Signs.—Dullness and diminished resonance over left apex; vesicular breathing, prolonged expiration; a few pleuritic friction sounds in right axillary space. No râles. Temperature normal.

He was regarded as nearly recovered, because his cough and expectoration had practically ceased. The physical signs indicated progressive improvement and temperature had become normal. For diagnostic purposes he received one milligramme of tuberculin, under which he reacted violently, temperature reaching 102° F. Tubercle bacilli were found in his sputum, ten to the field.

Injections were cautiously increased until April 29th, when he received thirty milligrammes, with scarcely any reaction.

During the entire treatment the reactions were accompanied by marked changes in the physical signs, several times amounting to positive evidence of localized pneumonia, with temperature of 104°, bronchial respiration and voice over left apex to third rib, and sibilant râles over right chest anteriorly. These usually disappeared in forty-eight hours.

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* Read at stated meeting of the New York Academy of Medicine, May 7, 1891.

The rain-baths were necessarily discontinued in this as in all other cases during the reacting stages of the tuberculin treatment. Their use was resumed when the patient could safely leave the bed.

This patient lost so much in weight and general appearance that I frequently felt misgivings as to the propriety of subjecting him to the experiment. The rain-baths were resumed, and his general condition at once improved and appetite returned. At the present time there is no cough, the least amount of expectoration, and but few pleuritic friction sounds over left apex. His weight is one hundred and seventy-eight and a half pounds. Dr. Hodenpyl, who kindly examined all sputa, reported: First examination, about ten bacilli to the field; second examination, very few bacilli; third, fourth, and fifth examinations, no bacilli.

This patient may be regarded as recovered, judging from the physical signs, subjective symptoms, his general condition, and the absence of bacilli. The diagnostic value of tuberculin was remarkably manifested in this case by the marked local as well as general reaction.

Whether it exerted any curative effect can not be stated, because the patient was steadily improving under the routine treatment before injections were begun. He steadily lost in flesh and strength and appetite until he resumed the rain-baths, when he again began to improve until to-day he has gained two pounds over his weight just before the injections, and sixteen pounds over his weight on entering.*

The following case may serve to clear up the doubt as to the curative effect of tuberculin:

Case II. *First Stage; Recovery under Hydrotherapy and Tuberculin.*—H. S., aged thirty-one, admitted May 2, 1890. Family history negative; always well until May, 1889, when he had first pulmonary hæmorrhage; was confined to bed eight weeks with cough, night-sweats, and afternoon fevers. In September, 1889, and January, 1890, he had hæmorrhages and went to Mount Sinai Hospital, whence he was discharged improved in seven weeks.

He had cough, expectoration, and pain in the chest; no appetite when admitted.

Physical Examination.—Dullness over right third anteriorly and posteriorly; subcrepitant and friction râles; broncho-vesicular respiration with prolonged expiration. On left side prolonged expiration with some friction sounds over left apex. Weight, one hundred and twenty-nine pounds and three quarters.

August, 1890.—Sputum found to contain bacilli.

In September, 1890, he had a hæmorrhage.

During this time he received rain-baths, syrup of the hypophosphites and creasote; at times cod-liver oil. Under this treatment he steadily improved, so that when he was subjected to tuberculin injections on December 16, 1890, he weighed one hundred and forty-six pounds—a gain of sixteen pounds and a quarter in six months and a half—and *no bacilli were found* by Dr. Hodenpyl in his sputum. There were still, however, dullness over right apex, broncho-vesicular respiration, and some subcrepitant râles. His temperature was 99°; after first injection he reacted well, reaching 101°. He continued to react under cautious but progressive doses of tuberculin. In this case the local signs of reaction were not so pronounced as in the last. The last injection he received was sixty-five milligrammes on April 15th, and produced no reaction.

There being no tubercle bacilli in the sputum and no cough or expectoration, and the physical signs being only a slight, jerky respiration, he was discharged cured on April 29th, weighing one hundred and forty-nine pounds. He has therefore increased twenty pounds since his admission, and three pounds and a half since injections were begun, during the continuance of which he lost very considerably.*

This case illustrates strikingly the value of hydrotherapy and general restorative treatment, but proves nothing for the curative action of tuberculin.

Case III. *Recovery under Hydrotherapy and Tuberculin.*—A. V., a nurse in the Montefiore Home, weighed in summer of 1890 one hundred and thirty-eight pounds. She was constantly engaged in the wards, in which her mother was also a nurse. She began to lose flesh while at work; cough and expectoration were pronounced, and she had two slight hæmorrhages.

Physical examination revealed impaired resonance over left apex, jerky, exaggerated respiration, fine moist and pleuritic friction râles. Bacilli abundant in the sputum. Weight, one hundred and twenty-six pounds on January 5th, when she received the first injection. Temperature, which was 100·2°, rose to 102·6° after one milligramme.

This patient received twenty-one injections, progressively increased. They were always followed by decided febrile reaction. The last injection of forty-five milligrammes was administered on the 1st of April, and was followed by very slight reaction. During the entire treatment she had daily rain-baths.

April 10th.—Cough, expectoration, night-sweats, and physical signs have ceased; her weight increased to one hundred and thirty-two pounds, and, no bacilli being found in the sputum, she was discharged at her own request as cured.

She is now working as a private nurse, feeling perfectly well.

Having been subjected to a regular course of hydrotherapy during the injection treatment, this patient can not be cited as evidence of the curative property of the "lymph."

Case IV. *Improvement under Tuberculin and Hydrotherapy.*—M. R., aged twenty-seven. Family history negative; has led a sedentary life. Illness began two years ago with throat trouble. Had several slight hæmorrhages, coughs frequently, expectorates, and is losing flesh. He professes to have had night-sweats since childhood. Went to the Riviera a year ago, where he gained thirty pounds. He looks well nourished at the present time, but pale and anxious. Weight, one hundred and seventy-eight pounds and a half.

Physical Signs.—Dullness over left apex; exaggerated, jerky breathing, with prolonged expiration anteriorly; fine subcrepitant and friction râles posteriorly and over apex. Right chest normal. Larynx (examined by Dr. Toeplitz) revealed general puffiness of mucous lining; vocal cords swollen and puffy; arytænoid mucous covering red and slightly swollen. No ulcerations.

December 29th.—Temperature normal. First injection of one milligramme was followed by a rise to 100°. These were increased cautiously every day, reaction being about one degree.

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* He was discharged on July 14th, weighing 183 lbs., and is now, August 1st, looking for work.

* He is now, August 1st, at work in Bronxville, N. Y.

On the 5th of January there was an abundance of tubercle bacilli found in the sputum. He now received, besides the daily injection, a daily dripping sheet, which refreshed him greatly. He had no other treatment.

On January 21st he received ten milligrammes, with reaction of half a degree. He was discharged now at his own request, weighing one hundred and eighty-two pounds and a half, bacilli having markedly decreased, there being, according to Dr. Hodenpyl's report, "very few" in each field, while the first report, fifteen days earlier, was "very large number." The physical signs on discharge were slight dullness and prolonged expiration over left apex; but no subcrepitant râles or friction sounds, which were marked on admission.

Cough and expectoration had so much improved that it required several days' accumulation of the latter to obtain a sufficient quantity for examination.

Laryngeal examination revealed great improvement; inflammation subsided; no puffiness remaining. Hoarseness improved.

This patient may be regarded as greatly improved under combined hydrotherapy and tuberculin treatment. The rest from absorbing mental labor doubtless contributed much to his improvement. Being engaged in important work, he abandoned treatment too early, and, after attending his onerous duties for a month, went to Europe for a few weeks, and is now actively engaged in business. I am satisfied that complete recovery would have resulted if hydrotherapy had been continued.

CASE V. *Improvement under Hydrotherapy, Cod-liver Oil, and Tuberculin Injections.*—B. Fine, aged twenty-eight, peddler, admitted July 7, 1890.

Illness began a year ago, with night-sweats, cough, expectoration, and pain in chest. Spent several weeks in Mount Sinai Hospital. Had several times traces of blood in sputum, but never hæmorrhage. Weight, one hundred and fifteen pounds.

Physical Signs.—Dullness over left apex, subcrepitant râles over area of dullness, pleuritic friction sounds in right and left parasternal spaces. Broncho-vesicular breathing, with exaggerated expiration over most of left chest; on right side normal.

Tubercle bacilli found on several examinations.

Treatment.—Cod-liver oil, wash-off, followed by rain-baths at 65° daily for thirty seconds. Occasionally got creasote. All symptoms improved, except pain in chest. Weight, one hundred and thirty-six pounds—an increase of twenty-one pounds before he received injections.

December 16th. Physical Signs.—Dullness over apex; subcrepitant râles slightly audible; broncho-vesicular breathing; no pleuritic râles. Temperature normal. No tubercle bacilli found by Dr. Hodenpyl. Febrile reaction after first injection (one milligramme), 100° F.; after fifth, of four milligrammes, 103° F.; The latter was followed by severe localized pains in chest.

Had altogether twenty-three injections, the last on April 27th of fifty-five milligrammes, which was not followed by reaction.

Cough, expectoration, and pain in the chest are the same as before injections.

There were four to six tubercle bacilli in the field on the 26th of February, but none on March 1st.

His weight now is one hundred and thirty-six pounds, having regained during three weeks' rain-bath treatment the loss incurred during its cessation under tuberculin injections.

CASE VI. *Second Stage; aggravated under Hydrotherapy; improved under Tuberculin at First; later, Cavity formed.*—M. B., aged twenty-four, printer. Father died of phthisis. Had several hæmorrhages during the past three years; treated at Mount Sinai Hospital; afterward went to Colorado. Hæmorrhage again on 11th of May, 1890, for which he was admitted. Weight, one hundred and forty-two pounds. Tubercle bacilli abundant.

Physical Signs.—Dullness over entire upper third of left lung; broncho-vesicular breathing; subcrepitant râles; harsh vesicular breathing over right apex. Has also tuberculous laryngitis.

Had daily rain-baths at 65° for half a minute and creasote internally.

December 16th.—Physical signs more pronounced; fine bubbling râles over left apex now; cough very troublesome; weight, one hundred and forty-two pounds. Temperature, 99°. First injection, one milligramme, followed by reaction to 100·6°. Received twenty-one injections; last (thirty-five milligrammes) on April 8th, under which he reached only 99·6°. His highest reaction at any time was 102·8°. Increased in weight to one hundred and forty-five pounds and a half on January 12th. On February 2d no bacilli found.

March 1st.—Has lost ground; reduced in flesh. Tubercle bacilli six to ten to the field.

April 10th.—Weight reduced to one hundred and thirty-seven pounds and a half. Cough and throat symptoms better. Physical signs indicate a cavity now.

This patient received no benefit from hydrotherapy; improved somewhat under the first injections, but decidedly deteriorated afterward. It is probable that the injections were negative in their influence, and that the depreciation was the natural result of the unchecked process.

CASE VII. *Second Stage; Improvement under Tuberculin.*—J. S., aged thirty, a nurse in the Home. Has had several hæmorrhages. Tubercle bacilli abundant.

Physical signs pronounced over left apex. Did not improve under cod-liver oil and creasote for several months. Objected to hydrotherapy until after he had finished tuberculin treatment.

Injections always produced pronounced reaction, sometimes amounting to 102° F. Last injection of eighty milligrammes followed by slight reaction only. Cough and expectoration improved; is attending to his duties as he did before injections; takes rain-baths now. Has gained five pounds and a half. Tubercle bacilli not so abundant. Physical signs of same character but not so marked.

This is the only case in the Home in which the patient improved under tuberculin without hydrotherapy.

CASE VIII. *Third Stage; improved under Hydrotherapy and Cod-liver Oil; lost after a Hæmorrhage; improved again under Tuberculin.*—M. G., aged twenty; admitted September 12, 1889, with night-sweats, troublesome cough, expectoration. Had a severe hæmoptysis shortly after admission. Weight, one hundred and twelve pounds.

Physical Signs.—Dullness over entire right lung; anteriorly, tympanitic. Harsh breathing, with coarse, gurgling râles; amphoric breathing over apex to third rib. Increased vocal fremitus and bronchial voice over upper third of right lung.

Treatment.—"Cold wash-off" daily; wet compress to chest. Cod-liver oil, hypophosphites, creasote. Later, rain-baths, 65°. Improved under this treatment, gaining thirteen pounds. In June, 1890, he had a severe hæmorrhage, with loss of consciousness; confined to bed six weeks, weighing fifteen pounds less when he got up. Water treatment was not renewed on account of the advanced process.

December 16th.—At his own request, began Koch treatment with half a milligramme. His weight was now one hundred and fourteen pounds.

Physical signs of cavity in upper third of right lung distinct; slight consolidation and catarrhal condition of left apex. Tubercle bacilli numerous. Reacted after first injection to 100·1°, temperature previously having been 99·6°.

Received thirteen injections, some of which produce severe general reaction. The last, on February 27th, was ten milligrammes. Injections stopped on account of advanced condition, having been given only to satisfy his craving for it.

During the injections the cough and expectoration improved.

His weight on March 25th was one hundred and seventeen pounds and a quarter. Tubercle bacilli continue in large numbers and are long, thick, and looped. On the 1st of May his physical signs are unchanged, except there is a diminution of râles.

This patient certainly improved somewhat under the cautious use of tuberculin, like the one in the following case:

Case IX. *Third Stage; Decided Improvement under Hydrotherapy, etc., and later under Tuberculin.*—B. S., aged eighteen, architect, admitted November 19, 1890. Mother died of chronic phthisis. Has been ill since he had an attack of pneumonia two years ago, with night-sweats, troublesome cough, and loss of flesh.

Physical Signs.—Tympanitic dullness over the upper third of left lung anteriorly, cracked-pot sound, cavernous râles, tubercular breathing, signs of catarrh in right apex. Complains of palpitation greatly. Weight, one hundred and fifteen pounds. Bacilli numerous.

Treatment.—Rain-baths, 70° to 65°, for thirty seconds. Cod-liver oil and creasote.

December 16th.—Up to this time his weight had increased eight pounds, although the physical signs are the same as on admission. Temperature normal. Received one milligramme, very cautiously increased on account of advanced process, and the case being purely experimental. Reaction after first injection to 101·4°. The highest febrile reaction was produced by twenty milligrammes, while the last of twenty-six injections (forty-five milligrammes) was *not followed by any reaction.*

April 10th.—His weight is one hundred and thirty-eight pounds. Cough does not trouble him now, and he expectorates very little. A few bacilli at every examination. Physical signs not so pronounced. Râles few, and there is evidence of contraction of cavity. The palpitations, which troubled him greatly, have disappeared.

Dr. Hodenpyl's report of examination is interesting.

December 16th.—One hundred tubercle bacilli to each cover-glass.

January 7th.—One hundred tubercle bacilli to each cover-glass.

February 2d.—Two bacilli to field.

16th.—Five bacilli to field.

March 1st.—Two bacilli to field.

May 7th.—His weight is one hundred and thirty-nine pounds. He has been receiving rain-baths since the injections were stopped. He looks well and may be regarded as markedly improved.*

This case is positive evidence of the value of tuberculin, being the only one in which the patient steadily improved under its administration even when hydrotherapy was suspended.

Summary of Cases of Phthisis. First Stage.—Recovered, 3; probably recovered, 1; improved, 4; aggravated, 1; stationary, 1.

Second Stage.—Improved, 1; aggravated, 1; stationary, 2.

Third Stage.—Greatly improved, 1; stationary, 1.

I regard those cases only as cases of recovery in which all objective symptoms have disappeared, tubercle bacilli failed to be discovered in at least three last examinations, and the gain in weight and appearance bear out the result, while the physical signs reveal cessation of the local process.

Surgical Cases.—We observed two cases—one of fistulous tract, with caries of spine, which did not improve; the other is an instance of such remarkably favorable effect that it deserves mention.

I am indebted for the following history to the junior resident physician, Dr. Bloch:

Case X.—N. E., aged fifty, Russian, admitted March 5, 1890. Two years ago he suffered from left otitis media and inflammation of the mastoid, for which he was operated on in several hospitals of this city.

He presents a hard, brawny swelling on the left side of the neck, extending from spine to trachea, which disfigures him and fixes his head at an angle of about 15° out of the perpendicular. There are five fistulous canals on the neck, one opening into the mouth; ulcerations extending over entire left side of neck, from the mastoid process to below the clavicle and forward to the cheek. The glands are infiltrated, forming a hard, compact mass.

He is very weak, is bedridden, constantly moaning. His speech can not be understood, on account of infiltration of cheek and throat impeding mobility of tongue and jaws. The discharge from the ulcerated surface of the swelling is exceedingly offensive, the stench failing to yield to iodoform, fuchsine, pyoktanin, besides other antiseptics.

December 16th.—He was so weak that it was a matter of desperate experiment to subject him to the possible debilitating effects of febrile reaction. But, as my diagnosis of tuberculous infiltration had been disputed by some of his hospital attendants, I was anxious to decide its correctness. There was no reaction after first injections up to five milligrammes. He now reacted to 102·4° from normal temperature. On April 27th he received thirty-five milligrammes without any reaction. After every injection there was an increase of exudation, a clearing up of sloughs, diminution of odor, infiltration decreased visibly, hardness yielded. At present there is only one large open fistula, four inches long; two small spicula of bone have been discharged. The probe strikes rough bone; three small fistulæ are nearly closed; two others entirely healed. Only a few glands remain infiltrated. *The ulcers have entirely healed*, leaving only a few red spots on cheek and neck. Head is movable now; he is able to go out, is cheerful, does not complain, is hopeful of entire recovery, and speaks quite distinctly.

This case illustrates the diagnostic value of tuberculin most strikingly.

Its therapeutic effect is not less remarkably demonstrated, inasmuch as the whole aspect of the case is changed from a most hopeless and forlorn condition to one of comfort and good cheer.

One such case would seem to carry conviction to the most skeptical mind that there resides in tuberculin the marvelous power of modifying certain tubercular processes which no other known measure has evinced.

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* He was discharged on July 14th, weighing 140 lbs. and looking the picture of health.

Conclusions.—The conclusions to be drawn from the cases observed and recorded in my experiments with tuberculin at the Montefiore Home may be formulated as follows:

1. That tuberculin possesses some diagnostic value, whose limitations are not definite.

2. That only in the surgical case was its specific therapeutic value definitely demonstrated.

3. All but one of the phthisis patients in whom it proved beneficial were more decidedly benefited by hydrotherapy, cod-liver oil, and creasote *before* the injections.

4. Inasmuch as our records furnish as good recoveries under systematic hydrotherapy, etc., prior to the use of tuberculin, as the three cases above recorded, our results do not warrant the statement of any *curative effects* from tuberculin in these cases.

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Correspondence.

LETTER FROM LONDON.

The Annual Meeting of the British Medical Association at Bournemouth.—The New University in London.—Five-year Medical Study.

London, *August 1, 1891.*

The annual meeting of the British Medical Association has been held this week at Bournemouth, and has been, as usual, a brilliant success. Dr. Roberts Thomson, the leading practitioner in the town, was chosen as president, and filled the post most admirably; his presidential address naturally turned to a considerable extent on the climate of the town and questions connected with public health generally. The address in medicine was intrusted to Dr. Lauder Brunton, who gave a rapid survey of the progress that medicine has made in the last five-and-twenty years. It was natural that he should have something to say about antivivisection and the gains to our art from experiments on animals, as he has all his life been a prominent member of the small band of practical vivisectors. "To it (vivisection) we owe," he said, "in great measure, our power to lower temperature, for to it is due not only the introduction of new antipyretics, such as salicylate of sodium, antipyrine, antifebrine, and phenacetine, but the extension of the use of quinine from a particular kind of fever, malarial, to other febrile conditions. To it also we owe our greatly increased power to lessen pain by the substances just mentioned, which have not only an antipyretic but an analgesic action, and give relief in the torturing pains of neuralgia and locomotor ataxy when even morphine fails to ease unless pushed to complete narcosis. The sleeplessness, too, which is such a frightful complication in some fevers can now be combated by other remedies than opium and antimony; and we have the bromides, chloral, sulphonal, paraldehyde, urethane, chloralamide, and others, which, either by themselves or added to opium, enable us to quiet the brain instead of exciting it to further action, as opium alone so frequently does. Our whole ideas regarding cardiac tonics also have undergone a complete revolution within the last quarter of a century, for I was told when a student that digitalis was a cardiac sedative and was apt to depress the heart, whereas now we know that it and its congeners—strophanthus, erythrophlœum, and sparteine—increase the heart's strength, raise the vascular tension, and are useful not only in sustaining the circulation, but in aiding elimination."

The address in surgery was placed in the hands of Professor Chiene, of Edinburgh, who gave a most interesting discourse on Rest as a Therapeutic Agent in Surgery, taking of course the late Mr. Hilton for his hero; of that writer's book on *Rest in Pain* he spoke in terms of the highest approbation, and every word of praise he gave it was most fully deserved, for it is unquestionably and must ever remain a classical work.

The amount of space at my disposal does not permit me to refer in any detail to the sectional addresses by the various chairmen of sections, but I can not pass Dr. Goodhart's pithy address in the Section of Diseases of Children without one short quotation. "The child," he said, "is father to the man. I never think of child-life as special. Its diseases are as the early eruption upon the skin is to the mature affection, and they must be studied not only as they are seen, but in the light of what they will become; they are an embryonic stage; but they *are* the mature disease modified only by the physiological activities existing at the time. Disease as it manifests itself at one time and the other does but complete the picture of the one disease, and some are children in some respects to old age, while others, being yet young, have known no childhood." Altogether the meeting was a great success and will compare very favorably with any of its predecessors.

In the world of medical politics we have had plenty of excitement of late, and an attainable degree does seem now to be within a measurable distance of the grasp of the average London student. A charter has been promised to King's and University Colleges to convert them into a university capable of giving degrees in medicine, arts, and sciences, and the ten other medical schools are to be allowed to come in as constituent colleges in the faculty of medicine and have a representative each on the Council. The Colleges of Physicians and Surgeons were offered three representatives apiece on the Council, a position which they very properly declined, though they expressed their willingness to take a part in the new university if the practical control of the medical faculty was intrusted to them. This, however, King's and University Colleges would not agree to, and, as they had apparently succeeded in getting the ear of the powers that be, they had their own way. The practical result is that these two colleges will in future be the university, and the outlook for the smaller medical schools is distinctly bad, for, as at present constituted, the university is penniless, and therefore all the examinations will be held at King's and University, at least presumably they will, as the university will have no other local habitation of its own, and already I have heard that the students are beginning to say that the proper thing for those who want the degree will be to go to one of those two colleges. Another very important change is about to take place, and that is the prolongation of the period of medical study from four years to five. There can hardly be two opinions as to the wisdom of this step; indeed, the only argument that could be urged against it is that it will increase the cost of medical education, but that can not outweigh the distinct gain to the public by a more prolonged and thorough training of the student. It takes, I believe, seven years to make a dentist and five years to make a solicitor; surely five years can not be too much to spend in acquiring the rudiments of medicine. The details of the curriculum are still under consideration, but there is no doubt that at any rate fevers, insanity, and diseases of the eye will be included in the subjects of clinical instruction and in the examinations in future.

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TUBERCULOSIS OF THE LACRYMAL SAC.

The *Lancet* for July 18th refers to a case of this rare disease reported by Dr. Emil Bock in the *Wiener medicinische Wochenschrift*, No. 18, 1891. The patient was a woman, aged twenty-seven, who had been suffering for two years from tuberculosis of the left elbow joint. An abscess gradually formed and opened spontaneously, leaving a stiff joint. There were numerous fistulæ, which continued to discharge. Shortly after the abscess opened a small swelling appeared in the neighborhood of the right lacrymal sac. It gradually increased in size until it was as large as a small hazel-nut. The skin over it was normal in appearance, but was adherent to the swelling. The tumor itself was immovable, and felt rather doughy to the touch. A probe could not be passed into the duct. The globe of the eye was normal. With the exception of enlarged glands in the right axilla and the diseased elbow joint, there were no manifestations of disease anywhere in the body. An operation was proposed, to which the patient assented. On incising the skin over the swelling, a brownish-red tumor was found beneath it. It was easily separated from the adhesions which had formed around it, and the whole contents of the sac in which it lay were removed. The wound healed in six days. The tumor had a diameter of about ten millimetres, with a smooth outer surface due to a collection of fat When this was removed it was then seen to be ragged and uneven. Microscopical sections showed collections of small round cells surrounded by thin strands of connective tissue. In the larger of these groups the center was often caseous. In some of the sections, in addition to the round cells, epithelioid cells were found. Giant cells were also numerous, especially around the periphery of the nodules. The discovery of tubercle bacilli proved the tubercular nature of the growth.

In his remarks on the case, Bock refers to the experiments of Valude, who had inoculated pure cultures of tubercle bacilli into the lacrymal sac of ten rabbits; the result was always negative. In only three cases did nodules appear in the vicinity of the sac. Valude came to the conclusion that the natural contents of the lacrymal sac killed the bacilli, so that infection was impossible. Bock, however, is of opinion that more stress must be laid upon the rapidity and force with which the tears are carried away by means of the continuous contractions of the orbicularis muscle. The bacilli naturally go with the stream, and are unable to find a suitable pabulum for their growth. In the case recorded by Bock the patient had probably carried some of the pus into her eye from the diseased elbow joint. There had been no relapse as far as the case could be followed.

MINOR PARAGRAPHS.

THE SEAT OF PHLEGMONOUS ANGINA.

Dr. O. Chiari, of Vienna, has recently published an interesting article on this subject in the *Wiener klinische Wochenschrift*. His study is based on the observation of thirty-four cases. According to the *Gazette des hôpitaux* for May 26th, the following are his principal conclusions: 1. Phlegmonous angina is rarely situated in the tonsil, and when such is the case it causes only very small abscesses. 2. Its usual seat is to the outer side of and above the tonsil, the latter being pushed downward and toward the median line. 3. The signs indicating suppuration (œdema of the soft palate and the fauces. sharp pain radiating toward the ear, fluctuation, etc.) may sometimes mislead the observer. In doubtful cases an exploratory puncture should be made at the middle of the anterior pillar of the palate, the trocar being pushed directly backward to the depth of two centimetres. 4 The presence of pus having been discovered, an incision should be made at the middle point of a line passing from the uvula to the crown of the upper wisdom tooth, unless a point of distinct fluctuation should be found elsewhere. 5. If the exploratory puncture does not reveal pus, and if the swelling is very marked, an incision should still be made to hasten the discharge of the inflamed tissue. 6. In some rare cases the pus comes to the surface elsewhere; hence we should not fail to examine carefully all parts of the mouth, the pharynx, and the space back of the posterior nares.

THE AMBULANCE SERVICE DEFENDED.

A special committee of the July Grand Jury was appointed to consider the complaints lodged against the ambulance system, and to report to the General Sessions any suggestions regarding its greater efficiency. The report was read on July 31st, and from it it appears that over 16,000 ambulance calls were answered in 1890, from ten hospital stations and two branches. With this enormous volume of business, it would surprise nobody if occasional mistakes were made, but the report has only words of commendation to accord to the *personnel* and general management. The ambulance surgeons are, as a rule, graduates in medicine who have "walked the hospitals" for six months before receiving their detail to the emergency service. The report condemns the present lack of adequate means of promptly notifying the hospital ambulance stations of the location of patients requiring attendance, and avers that it is a blot on the city's progress that it is to-day without a comprehensive system of signal-boxes or stations available in cases of sudden disaster, sickness, and accident. The report argues that the adoption of cable traffic in crowded streets will probably cause, during the first year of its use at least, an unusual number of street casualties, and therefore urges that the signal service be perfected without delay.

THE TOXICITY OF SALOL.

Although salol has been very freely used, both among children and among adults, and although it has come to be regarded as one of the least dangerous of the new remedies having antiseptic and antithermic properties, there are not wanting clinical testimonies which tend to show that, under certain circumstances at least, its use may be attended with a fatal result. The *Lancet* for May 23d refers to a case reported in 1890, by Aufrecht and Behm, in which death followed its use in acute endocarditis, and another case, more recently published in a Bohemian medical journal, by Dr. Chlapowski, in which a fatal result was observed to follow a fifteen-grain dose of salol. In this latter case the patient was suffering from severe gastric symptoms, and was under examination according to Ewald's method. After taking the dose the patient became restless and unconscious, the pupils were dilated, the pulse was irregular, there was constant vomiting, and the urine became dark and contained salicylic acid. Death occurred twelve days later. At the autopsy there were found gastritis and hæmorrhagic enteritis, a gastric ulcer cicatrized at the cardiac end, chronic endometritis, and a cyst of the ovary. No doubt was entertained that the salol had been the cause of the symptoms of poisoning.

GALVANO-HYSTRESIS.

Under this title S. P. Thomson, D. Sc., B. A., of Finsbury, describes in the *Proceedings of the Royal Society* some new electric phenomena as follows: "If a sufficiently strong electric current is passed through a coil of insulated soft iron wire for a short time, and the wire disconnected, and if, after the lapse of any length of time, the wire is placed in the circuit of a galvanometer, and is then subjected to longitudinal magnetization or to a succession of alternately directed magnetizations, it is found to discharge an electric current through the galvanometer." The direction of the current discharged is the same as that of the original current and opposite to that in which the current would flow if the wire acted as a condenser. A wire not having been subjected to an electric current will give forth no such discharge; one having been so charged will not give forth more than one discharge of electricity until it has been subjected to the electric current again. The time integral of the discharge current is independent of the duration of the charging current, and practically independent of the longitudinally magnetizing current. Its strength is within certain limits proportional to that of the charging current. The author acknowledges the similarity—not identity—of these phenomena to those obtained by Villari by mechanical agitation of iron bars through which electric currents had been previously passed, and also to those observed by Hughes with the induction balance.

THE RETURN OF THE KNEE-JERK IN A TABETIC.

Dr. J. Hughlings Jackson, in the *British Medical Journal* for July 11th, reports a very interesting case of return of the knee-jerk, after hemiplegia, in an old case of tabes. The patient, a man forty-nine years of age, had contracted syphilis some twenty-three years previous to the report of the case. At the time that he came under observation, in February, 1888, the symptoms of tabes were typical. There was also some evidence of hemiplegia, the patient having suffered from two attacks a short time before his admission to the author's service. About forty-seven days after the second attack of hemiplegia the return of the right knee-jerk was noticed, and subsequently the left was obtainable by re-enforcement. It was presumed that the return of the patellar reflex was contemporaneous with the establishment of sclerosis of fibers of the pyramidal tract in the bundle of deep fibers of the lateral column. It is well known that in many cases of uncomplicated hemiplegia there is exaggeration of both knee-jerks. It has been shown by various authors that at least in some cases of lesion of one internal capsule there has followed degeneration of fibers in both lateral columns.

NAPHTHALINE AS A VERMIFUGE.

In the *Mercredi médical* for May 20th, Dr. Mirovitch, of Biélsk, speaks of naphthaline as the best agent for expelling tænia. In his opinion, it is superior to all other remedies, because of the certainty of its action and the absence of all toxic effect, for it is absorbed in but very minute amount by the gastro-intestinal mucous membrane. The dose for adults is fifteen grains, given when the stomach is empty and followed immediately by two tablespoonfuls of castor oil. Children may take from four to eight grains, and at the same time a tablespoonful of castor oil flavored with a few drops of essence of bergamot. During the two days preceding the administration of the drug the patient is to eat freely of salted, acid, and spiced foods. Dr. Mirovitch states that in all his cases one dose of naphthaline was sufficient to expel the tapeworm, the head included, even in cases in which other drugs had failed. He has also found the drug most effective in the treatment of patients with ascarides.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 11, 1891:

DISEASES.	Week ending Aug. 4.		Week ending Aug. 11.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	0	0	0	0
Typhoid fever	39	5	42	6
Scarlet fever	99	21	90	17
Cerebro-spinal meningitis	1	1	1	1
Measles	121	8	80	7
Diphtheria	75	25	62	18
Small-pox	0	0	0	0
Varicella	1	0	1	0
Whooping-cough	0	2	2	3
Erysipelas	0	0	0	0
Mumps	0	0	0	0

The American Society of Microscopists held its fourteenth annual meeting in Washington on Tuesday of this week, under the presidency of Dr. Frank L. James.

The Chicago Post-graduate Medical School and Hospital.—Dr. Fred B. Robinson, having resigned the chair of anatomy and clinical surgery in the Toledo Medical College, has accepted that of gynæcology in the Chicago school mentioned.

Changes of Address.—Dr. G. Halsted Boyland, from Baltimore to No. 73 avenue d'Antin, Paris, France; Dr. Alexander Rixa, to No. 1268 Lexington Avenue; Dr. Fred B. Robinson, from Toledo, O., to No. 999 West Madison Street, Chicago.

The Death of Dr. John J. Cochran, of the Army, took place at St. Luke's Hospital on Wednesday, the 6th inst.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from August 2 to August 8, 1891:*

Girard, Alfred C., Major and Surgeon, relieved from duty at Fort Niagara, New York, and ordered to Fort Sheridan, Illinois, for duty.

Skinner, John O., Captain and Assistant Surgeon, assigned to duty at Fort Clark, Texas.

Bradley, Alfred E., First Lieutenant and Assistant Surgeon, granted leave of absence for thirty days.

Kneedler, William L., Captain and Assistant Surgeon. The leave of absence granted is extended one month.

Miscellany.

The American Surgical Association will hold its annual meeting in Washington, D. C., on September 22d, 23d, 24th, and 25th, under the presidency of Dr. C. H. Mastin, of Mobile. The programme includes the following titles: The Present Status of Brain Surgery, by Dr. D. Hayes Agnew, of Philadelphia (Abstract: Observations and results of Philadelphia surgeons in cases of epilepsy, traumatic and Jacksonian; abscess; hæmorrhage; hydrocephalus; microcephalus; cephalalgia and tumors. Discussion by Mr. John Chiene, of Edinburgh, Scotland; Dr. W. W. Keen, of Philadelphia; Dr. C. B. Nancrede, of Ann Arbor, Mich.; Dr. Roswell Park, of Buffalo, N. Y.); Report of the Committee on the Results which should be considered as Satisfactory of the Treatment of Fractures of the Shaft of the Femur, by Dr. Stephen Smith, of New York; Aseptic and Antiseptic Details in Operative Surgery, by Dr. A. G. Gerster, of New York (Abstract: 1. Personal cleanliness and the cleaning of the field of operation are to be accomplished by mechanical procedures rather than disinfectants; soap and brush *versus* chemicals; brushes hot-beds of infection; their cleansing by boiling. 2. Dressing materials to be sterilized by steam; advantages of this plan. 3. Instruments to be sterilized by boiling in soda solution to prevent rusting. 4. Sponges, their cleansing, preservation, substitutes, and use. 5. Technique of operating; advantages of employing few instruments, sponges, and assistants; clean dissection—that is, avoidance of tearing and bruising of tissues; careful hæmostasis; no irrigation except where a special indication arises in the shape of existing or accidental contamination by fæces, urine, or extraneous filth (as, for instance, in compound fractures). 6. Drainage by tubes often unnecessary; its substitutes; where the tubes are indispensable. 7. Dressings, their manner of application and reason of efficiency; *a*, moist; *b*, dry absorbent dressing; *c*, sealing of wound by collodion. 8. In combating septic morbid processes, mechanical measures, such as incision, drainage, and irrigation, of more importance than the employment of chemicals. Discussion to be opened by Dr. Robert F. Weir, of New York; Dr. J. Collins Warren, of Boston; Dr. J. William White, of Philadelphia; and Dr. Joseph Ransohoff, of Cincinnati); The Surgical Treatment of Injuries and Diseases of the Vertebral Column, by Dr. J. William White, of Philadelphia (Abstract: *A*. Congenital deformities—spina bifida; review of operative methods. *B*. Tuberculosis of the spine. 1. Indications for operative interference. 2. Cases in which the focus of bony disease may be removed. 3. Relief of paralysis in spinal caries after pointing of a psoas or iliac abscess. 4. Paralysis in Pott's disease generally the result of an external pachymeningitis. 5. Pus to be evacuated whenever accessible; treatment by extension process with plaster jacket; resection. 6. In caries of portion of the arches with paraplegia, we should almost always operate. 7. Exposure of cord, if bodies of lumbar vertebræ are affected, to relieve pressure and remove diseased bone. 8. Where compression of cord is thought to be due to anterior pachymeningitis, an operation can rarely liberate pressure. *C*. Neoplasms. Amenable to operative interference. *D*. Traumatism. 1. Some objections urged against operative interference in spinal traumatism unsupported by clinical facts; others largely due to well-founded dread of: *a*, shock; *b*, consecutive inflammation. 2. Recent results of operative interference encouraging. 3. Operation contra-indicated where disorganization of cord is caused by a severe crushing force. Discussion: Dr. Maurice H. Richardson, of Boston; Dr. H. H. Mudd, of St. Louis; Dr. John B. Roberts, of Philadelphia; Dr. Charles B. Porter, of Boston: Dr. Robert Abbe, of New York; Dr. W. W. Keen, of Philadelphia); On Retroperitoneal Abdominal Tumors, and especially those involving the Kidney, by Dr. A. Vander Veer, of Albany (Abstract: Tumors—retroperitoneal in their origin, sources, and character; anatomical relations; from retroperitoneal connective tissue and lymphatic glands; from the suprarenal capsule and the capsule of the kidney; they may be present anteriorly between the folds of the mesentery or displace the viscera *en masse*, or posteriorly in the dorsal or lumbar regions; they may be benignant or malignant, cystoma, fibroma, myxoma, sarcoma, or mixed growths. Gross and minute anatomy. Diagnosis: Difficulties: Indirect by exclusion, from tumors of the viscera, is often impossible. Use of aspirator. Prognosis: Rapid growth is evidence either of primary malignancy or secondary degeneration and infiltration. Operative treatment has not been followed by encouraging results. Treatment: In what cases, if not all, shall operative treatment be undertaken? Difficulties attending the operation. Intimate connection with peritonæum, the viscera, and great vessels. *Résumé*. Discussion: Mr. Reginald Harrison, of London, England; Dr. Robert Abbe, of New York; Dr. William T. Bull, of New York; Dr. Frederick E. Lange, of New York); Recurrence of Cancer of the Breast, by Dr. Frederic S. Dennis, of New York (Abstract: In a study of the cases of carcinoma of the breast only those cases will be utilized in which a thorough microscopical examination has been made by a well-recognized pathologist; all other cases are to be excluded as worthless. The recurrence of carcinoma in the breast is influenced by: 1. The period of time from first appearance of the growth to the date of the operation. 2. The extent to which infiltration has taken place by any one or all of the three well-recognized ways of dissemination. 3. The radical character of the operation itself. 4. The histological character of the carcinoma itself. 5. The appearance simultaneously in both breasts. 6. The personal factors of the individual, such as age, sex, marriage, fecundity, sterility, pregnancy, traumatism, heredity, menstruation, metastasis, mental condition, locality, etc. Discussion: Mr. Thomas Bryant, of London, England; Dr. Hunter McGuire, of Richmond, Va.; Dr. Lewis S. Pilcher, of Brooklyn; Dr. D. Hayes Agnew, of Philadelphia; Dr. L. McLane Tiffany, of Baltimore); The Treatment of Tuberculosis of Bones and Joints by Parenchymatous and Intra-articular Injections, by Dr. Nicholas Senn, of Milwaukee (Abstract: Introduction. 1. Tincture of iodine. 2. Carbolic acid. 3. Arsenious acid. 4. Corrosive sublimate. 5. Phosphate of lime. 6. Balsam of Peru. 7. Camphorated naphthol. 8. Iodoform; experimental studies; clinical results; immediate and remote dangers; action of, on tubercular tissue; indications; technique. Discussion: Dr. Lewis A. Stimson, of New York; Dr. John Ashhurst, Jr., of Philadelphia; Dr. Frederick E. Lange, of New York; Dr. A. G. Gerster, of New York; Dr. A. T. Cabot, of Boston; Dr. D. D. Bramble, of Cincinnati); The Treatment of Fractures involving the Elbow Joint, by Dr. Lewis A. Stimson, of New York (Abstract: 1. Causes of limitation of motion after recovery; *a*, changes in the relation of the parts of the joint; *b*, overgrowth of bone; *c*, peri-articular. 2. Causes of deformity; treatment; reduction; maintenance—elbow flexed, elbow extended; after-treatment. Discussion: Mr. Arthur Edward Durham, of London, England; Dr. D. Hayes Agnew, of Philadelphia; Dr. N. P. Dandridge, of Cincinnati; Dr. R. A. Kinloch, of Charleston; Dr. D. W. Yandell, of Louisville; Dr. Stephen Smith, of New York; Dr. E. M. Moore, of Rochester; Dr. James McCann, of Pittsburgh); Fractures involving the Upper Third of the Femur, exclusive of the Neck, by Dr. Oscar H. Allis, of Philadelphia (Abstract: 1. The infrequency renders it improbable that any single observer can speak authoritatively upon the subject. 2. Pathology. A study of the deformity as presented in pathological museums; its uniformity suggests a special agency for its production; an agency suggested at variance with the usually accepted one. 3. Permanent lameness or weakness in the limb not the result of insufficient bone repair; an inquiry into its cause. 4. Deformity in the upper compared with that in the middle and lower thirds. 5. Treatment; inquiry into the defects of prevailing methods; treatment suggested. 6. Faulty professional standard of what constitutes a good cure. 7. Appeal to surgeons for a thorough reopening of this important subject); Thoracic Surgery, by Dr. De Forest Willard, of Philadelphia (Abstract: 1. Wounds and injuries of the thorax. 2. Tumors of the thorax. 3. Conditions of disease. 4. Pus accumulations); A Case of Diffuse Hypertrophy of the Breasts, with Photographs, by Dr. C. B. Porter, of Boston; Fractures of the Bones which form the Elbow Joint, and their Treatment, by Dr. Levi C. Lane, of San Francisco; Old Unreduced Luxations of the Elbow, by Dr. Lewis A. Stimson, of New York; The Study of a Case of Hemiplegia with Aphasia, following Ligature of the Common Carotid Artery, by Dr. J. Ewing Mears, of Philadelphia; Investigation of Pistol-shot Wounds of the Skull and their Treatment, by Dr. E. H. Bradford, of Boston; The Result of Some Experiments in the Filling of Cavities in Bones following Operations for Caries, by Dr. E. H. Bradford, of Boston.

The President's Address, delivered at the Fifty-ninth Annual Meeting of the British Medical Association.—We are indebted to the *British Medical Journal* for proofs of the following address, by J. Roberts Thomson, M. D., F. R. C. P., consulting physician to the Royal Victoria Hospital and to the National Sanatorium for Consumption, Bournemouth:

My first duty—in the name of the Dorset and West Hants Branch of the Association, in the name of the local members of the profession, in the name of the Corporation of Bournemouth, and in the name of my fellow-townsmen—is to bid you all a very hearty welcome, and to express the hope that, favored by Bournemouth weather, your sojourn here may be a very enjoyable one; that you may obtain refreshment and strength from our health-giving breezes; and that you may thus carry away pleasant memories of your visit to this delightful neighborhood. We trust that the arrangements which have been made for the more serious work of the annual meeting will be found such as to promote your comfort and lead to a satisfactory conduct of the business. And we also hope that the various outings which have been organized for your amusement when the scientific and business parts of the meeting are over will prove attractive and minister to your enjoyment.

I have heard it rumored that some member of the association (I do not know his name) had proposed to give notice of his intention to move "that the President's Address be taken as read." His courage, however, seems to have failed him at the last moment, and I am left in possession of the field. I can, however, assure the member—should he happen to be present—that I am very considerably in sympathy with his opinion, and that I shall so far consult his views, and those who may think with him, by trespassing for only a short period upon your patience and time.

At the annual meetings of such an association as this there must ever be matters of great importance to discuss—questions upon which it is highly proper that members should take counsel together—subjects the adequate discussion of which is somewhat difficult in the time into which the general meetings must be compressed. I for one, therefore, have no desire to see the president unduly encroach upon the time at the disposal of the association by delivering a lengthy address. But, may I—as a fair recompense to ask for giving up time which I might have occupied—venture to suggest that members will, in all business matters which may have to come before us, remember the value of our time and put bounds upon their eloquence.

The place in which you find yourselves would not, a few years ago, have been large enough for the annual meeting of our association. The history of Bournemouth does not go back into the dim and distant past. There are those among us, by no means very advanced in years, who can remember when it was little more than a village, and when the nearest station—then called Christchurch Road, now Holmsley—was twelve miles off. Now we are within two hours and a half of London, and three lines of rail find a terminus here. By one route you may travel to Birmingham, York, Bradford without change of carriage; by another Shrewsbury, Chester, even Birkenhead may be reached without leaving the carriage in which you began your journey. Comparatively, a few years ago, it was but a tiny place, now the population of the borough and the immediately surrounding district exceeds forty thousand. What are the causes which have brought about this large increase? We have had but little enlightened action on the part of the large owners of property. It is true that on more than one estate there has of recent years been a wiser policy pursued of meeting public wants, and anticipating to some extent the needs of an advancing population; but this has been the exception. It is not in consequence of encouragement from the landowners that the place has grown and flourished. How then is it that this has taken place? A locality may increase in consequence of the large-hearted action of ground landlords—parks laid out and presented to the people, estates developed in a wise and generous spirit, public movements and public institutions fostered and lavishly helped; or, on the other hand, there may be a development from the nearness of large manufacturing populations, which, as a result of their growth and prosperity, cause vigorous offshoots to spring up and expand; but here you have none of those things. No large-hearted action on the part of landlords tended, in the first instance, to cause Bournemouth to develop. There are no centers of large manufacturing interests at all near us to cause an overflow into our town. Whence then has this great expansion arisen? The answer is threefold:

1. The medical results of residence during the winter and spring months in Bournemouth have been so satisfactory that invalids have returned here winter after winter, and have brought their friends. Doctors in less favored climates have been so satisfied with the effects of a sojourn here on such patients as they may in the first instance have sent, that they have recommended the place to others, and so a large and ever-increasing winter population has come here. It is certainly due from me, in this connection, to mention the name of the late Dr. Burslem, who five-and-twenty years ago was in the zenith of his fame, and whose reputation undoubtedly attracted a large number of invalids here to receive the benefit of his skill and experience. He was suddenly cut down in the midst of a life of much usefulness, and was called upon to endure, which he did with much patience, seventeen long years of weakness and suffering. And I must also mention my revered colleague, the late Dr. Falls, whose removal from among us when many years of active work might still have been looked for, we so much mourned, and whose loss at such a time as this we so much deplore.

2. The discovery which people have made for themselves, that though a mild winter climate, it is also a delightful summer climate, and thus we have had a steadily progressive summer season. When I first knew Bournemouth the summer season was very small. Go to Bournemouth in July? "Why, you could cook chops in the sand," was the exclamation which would be made. But people now know that this is the reverse of the truth, that it is in reality a cool and bracing seaside change, for the south coast in summer, and now we have, as I have said, a large and steadily increasing summer population.

3. That care has been taken to preserve, and when possible to improve, the natural advantages of the district. I have spoken of the apathy which, more especially in the earlier history of Bournemouth, existed on the part of the owners of the land; and therefore it is in large measure to the action of the governing body of the town that this care in its development is due. For many years the government was carried on by a board of commissioners; a well-abused but, for the most part, an earnest and hard-working set of men. In November last we blossomed into the full-blown dignity of a mayor and corporation, and it will be a matter of some pride for the town in future days to remember that the most important event of the first year of the municipality was the visit of the British Medical Association.

Did time allow, or were this the fitting place, there is much that could be said upon each point in this threefold answer. With regard to the second and third points I will not detain you. Suffice it to say that for our summer visitors—be they invalids seeking health, or persons jaded and overdone, seeking restoration of strength or refreshment only—much is done in the way of catering for their recreation and amusement. A fine fleet of steamers daily provides charming sails of much variety, while an endless diversity of drives is offered to those who prefer land excursions, and who do not care "to go down to the sea in ships."

For the geologist there are many attractions, both physiographical and palæontological. The Portland and Purbeck Beds are close at hand to the west, while the famous Barton Beds are within easy reach to the eastward.

For the botanist, within the compass of a day's excursion, either on the heaths and moorlands, in the fertile valleys of the Stour and Avon, or in the New Forest, rich and interesting fields of investigation are to be found.

For the antiquary there are a great variety of objects of interest. Badbury Rings, an old British encampment, and Maiden Castle, one of the most perfect and most elaborately fortified early British camps, are within no great distance. Corfe Castle stands pre-eminent among the castles of Great Britain as a grand and noble example of mediæval military architecture, although it is chiefly noticed in history as a state prison. The incident which has most contributed to the notoriety of Corfe is the murder of King Edward the Martyr, but this is associated with the spot only, and not with the fortress as we now see it, for the event took place before the existing castle was erected. We have in connection with Corfe Castle the earliest record, so far as I know, of a London consultation in these parts. In the reign of King Henry III, Master John de Beauchamp was sent from London to see a princess who was ill. His journey was probably a hurried one, and the distance being long, the palfrey on which the doctor rode seems to have been overworked, for it died on its way back to London. The treasurer and chamberlains of the Exchequer were ordered to pay to its master out of the King's treasury three marks (£2) in compensation. Nags were either very cheap in those days, or else the King's physician was content to ride a very second-rate animal. A consultant from London visits us under somewhat more favorable circumstances nowadays. For those who love ecclesiastical architecture, the Priory Church of Christchurch is only five miles off, and the Minster of Wimborne may be reached in little over half an hour.

But I must not dwell on such subjects, neither shall I dilate on the excellence of our water supply, the admirable character of our drainage system, or the manifold arrangements carried out, or now being anxiously considered, by the governors of the town, to keep it in the first rank as a health resort.

The motto chosen by the corporation is "Pulchritudo et Salubritas." The classical character of this motto has been called in question, and is open to discussion. But as to the truth of it there can be no two opinions. We have here the beauty of Nature supplemented by the careful development of the best features of the district; and we have health as the combined result of climate, soil, shelter, and the absence of those insanitary conditions which arise from crowded and confined habitations. These are all-important. Many of them you will be able to appreciate during your stay among us, and I will not further refer to them.

But I may be pardoned if I dwell for a few sentences on the purely medical aspect of the subject. It will, I trust, prove of interest to you and may also, I venture to think, be useful.

There are few subjects to my mind more difficult from a therapeutical point of view than that of medical climatology, and yet it is one the importance of which it is difficult to exaggerate. Every day it is taking a stronger hold upon the minds, not only of medical men, but of the general public. Side by side with sanitary science, it has been developing into a subject of the utmost importance. Both as a preventive measure and as a means of alleviating and curing disease, the question of change of climate is fostered by the remarkable facilities which now attend the traveler in his wanderings over every part of the world. Invalids travel much more than in former times, when the wealthy alone could enjoy the privilege.

Where must I go? is a question put much more frequently to the medical practitioner than it used to be, and is a form of interrogation which every one should be prepared to answer without hesitation. And yet it is the branch of therapeutics which has received the least attention from practitioners, as an ordinary rule, and about which their views are often to a large extent hazy and indefinite. This arises in great measure from the difficulty of the subject, and from the perplexities which present themselves when one desires to obtain precise information as to any given climate. The data from which an opinion is to be formed are not always forthcoming, and such as are to be had are not always reliable.

Meteorological observations are, of course, very valuable, but they are not infallible guides as to the climate of any given locality. Personal observation and experience also are valuable, but one can not, unless they cover a very long period, implicitly follow their teachings. The greatest living British authority on climate, Dr. Walsh, told me, for example, that if there is anything more certain than another about the climate of Pau it is a very still place, and remarkably free from wind; yet on the occasion of his first visit there the storm shutters were blown off the windows of the room he occupied; and so his personal experience of Pau was that it was the very windiest place he had ever been in.

People believe that weather affects them. They speak of its influence—sometimes commendingly, more frequently with censure—on the most trivial occasions; but, beyond a few commonplace ideas, the result of careless observation, or perhaps acquired only traditionally, they seldom seek a closer acquaintace with the subject. Our language teems with medico-meteorological apothegms, but they are notoriously vague. The words which are most commonly employed to signify the state of the weather at any given time possess a value relative only to the sensations of the individual uttering them. The general and convertible terms—bitter, raw, cold, bleak, inclement, or fine and bracing—convey no definite idea of the condition of the weather; nay, it is quite possible that we may hear these several expressions used by different persons with reference to the weather of one and the same place and point of time. In order to render medico-meteorological researches more trustworthy, it is necessary to supply—in the expression of facts—such symbols only as have a corresponding value in every nation. I need not say that we are very far from having reached this point.

Relatively to the amount of labor which has been bestowed upon other branches of medical science, that which has been bestowed upon this may be described as meager, and much further research is wanting. I do not for one moment ignore the valuable contributions to this department which have been made by physicians of distinction. On the Continent of Europe and in America, as well as in the United Kingdom, many physicians by their labors have enriched this branch of medicine; but very much still remains to be done, and it is a field which offers rich results to those who will patiently cultivate it.

There is, in my opinion, a tendency in these modern days to neglect such lines of study, and to concentrate attention more on concrete matters of therapeutic interest. As an illustration of what I mean, let us look at what has happened during the last few months in relation to the questions opened up by Koch's great discovery. I do not, of course, propose to enter into a consideration of this question. Debates of great interest are promised both in the Section of Medicine and in the Section of Therapeutics, in which this subject will receive due attention, and it is not for me to anticipate these. But I want to refer to the way in which not only the general public (that we can understand), but large numbers of the profession, seemed to lose their heads in this matter. The daily press contained daily telegrams, announcing alleged fresh discoveries in pathological knowledge, or fresh advances in therapeutic expedients. It would seem as if men had nothing to hold by, and as if the beliefs and the practice of yesterday were to be upset by the telegrams of this morning.

And where is it all now? I would be the last to underestimate the immense value and importance of all bacteriological research. As our knowledge in this department increases, so will increase in like ratio the precision of our knowledge of the true nature of many diseases and processes, and the only rational methods of dealing with them. But bacteriological research must go hand in hand with clinical observation and with a study of all collateral subjects which may affect the life history of bacilli, through modification of the soils in which they live, or in other ways. The effect of climate as a powerful factor in modifying the soil in which bacilli thrive is a subject which for the moment was forgotten, but it will be found that however important methods may be discovered—chemical or otherwise—in dealing with such terrible agents of disease, the assistance of climate and of other things can not or ought not to be overlooked. Carlyle wrote in 1866: "It is evident that whatever is not made of asbestos will have to be burned in this world. It will not stand the heat it is getting exposed to." A good deal that was believed on this matter has been found not to be asbestos, and the heat of further scientific discussion is showing us that we can not throw over things we formerly trusted to, among which climate holds a very high place.

As a winter resort for the phthisical patient and for all those invalids whose vitality gets lowered by confinement to the house, Bournemouth offers many advantages. There are many to whom a journey is an impossibility, or who dislike the separation from home and friends which going, say, to the Riviera involves. They do not escape an English winter by coming here, but they will get the driest climate which England has to offer, and they will thus be able to get a large amount of out-of-door exercise.

The climate of Bournemouth is influenced by the geological formation on which the town is built, by the geographical position, and by the pine woods which surround the district. The geological formation is sand and gravel of the most porous character. The sand lies on the top of clay, but the clay is from one hundred to one hundred and twenty feet below the surface. The natural drainage is therefore admirable, and the surface of the soil is dry very soon after the heaviest rain. Our geographical position also influences the amount of cloud. With the sea to the south, two rivers to the east of us, the Purbeck hills and the inland waters of Poole Harbor to the west and northwest, the clouds get attracted away from the town, and we often are, as it were, in a basin with little cloud, while there may be a considerable amount of cloud all round us. Less cloud, of course, means more sun, and if there is one line of meteorological record in which we excel more than another, it is in the absolute amount of sunshine which we have. Being in a deep bay, also, we are out of the sweep of the Channel, and so escape the fogs which hang more over the swift tidal current. When they come from the southwest (as they often do) the Purbeck hills form an effective screen and frequently detain them, giving us a clear atmosphere on the further side. The pine woods affect the climate by giving shelter without drawing damp. We know nothing about the fall of the leaf; it always seems dry under fir trees, and they also medicate the air by their balsamic exhalations. During the spring months, when the fresh shoots are being formed, and under the influence of the sun's rays, a very large amount of terebinthinate vapor is given off. The peculiar tides—or rather absence of tides—makes the bay a most excellent place for bathing. There is no period of the day when bathing may not be indulged in so far as the tide is concerned, and the absence of current makes it of course additionally more safe. To sum up briefly, we offer a climate which in the winter is, for England, dry, with a fair amount of sun and sheltered from all quarters except the south. Invalids therefore get out a great deal, and can in the inner roads escape the wind while still keeping in the sunshine. In the summer we have a beach available at all times for bathing, shade to an extent which can seldom be found at the seaside—where is there a seaside resort in England with more trees?—and the climate, because of the dryness, not relaxing; also, as the result of being in a bay, we always have a breeze in warm weather.

Persons must not, of course, expect too much. They sometimes speak as if they anticipated a subtropical climate a hundred miles south of London, and as if they were prepared to find that our woods consisted of palm trees and cocoanuts. They have not left England, and so must be prepared for the uncertainties of an English climate. But they will find these modified in a marvelous way by local causes, and will obtain medical results from residence here not inferior to what may be got by journeys much further afield. They will also avoid the discomforts and disadvantages which result therefrom.

It follows, of course, from all this that there are classes of cases for which our climate is not suitable and who do not get on well here. Those bronchial cases with very irritable cough, which require a moister and more soothing climate, are better elsewhere. Many throat cases, with very irritable mucous membrane, also do better in moister climates, and away from the sea. And there are some forms of neuralgia which seem to be aggravated either by the dry air or by proximity to the sea. But this short list has nearly exhausted the forms of invalidism which may not receive benefit from a sojourn here.

When I first began work in Bournemouth a very large majority of the patients one saw were cases of lung trouble. Now we see persons broken down in health from every possible cause. Even with an extended experience, I do not feel called upon to enlarge the list of cases unsuitable. And it will be evident that the direct salutary influence on many chronic maladies—such, for instance, as Bright's disease—is very marked, and may be confidently looked for.

One word as to our hospitals. We have a large number of institutions here, some of which are special; of these I shall only refer to three.

The National Sanatorium for Consumption and Diseases of the Chest has for many years done a large work among convalescent cases of this class. The results have persistently been of a very encouraging character. There are sixty beds, and it is closed for only two months during the summer. This has led to the building being available for the sectional meetings; and our best thanks are due to the committee of that institution for their kindness in allowing us to use it for that purpose.

The Firs Home for cases of advanced consumption has existed for twenty years, and for a long time was unique in the country. Many cases of chest disease which, perhaps, had better never have left home, become unsuitable for the institutions to which they had been sent. This home provides a shelter in which they are encouraged to stay, and where everything that can be suggested to alleviate their sufferings or to soothe their last days is provided on a generous scale by the management.

The third special institution to which I would refer is the Sanitary Hospital, which is the property of the town. Here every effort is made to keep it abreast of all modern ideas, and there is no need to expatiate in such an assembly as this on the value of such a building to deal, by way of complete isolation, with cases of zymotic disease which require removal from their surroundings.

As regards general hospitals, we have the Royal Victoria Hospital, the first block of which—now in use for two years—was erected by the town as the Jubilee Memorial of our beloved Queen. With a large medical staff we have there complete arrangements not only for in-patients, but for out-patients, and for the home visiting of our sick poor. There is also the Provident Infirmary at Boscombe which does a large work among the poorer classes in the eastern parts of the town. These and many other institutions are all open for your inspection, and it will afford the committees of each much gratification if you will go and look at them.

But I have dwelt long enough on matters local, and I wish now to turn to another subject. I desire to discuss with you, very briefly, a question of very vast importance in connection with sanitary progress, and with the relations of our profession to preventive medicine, to the legislature, and to the public. I refer to the present position of medical officers of health in England, and to the working of the most recent legislation in this matter as found in the Local Government Act of 1889, which established county councils throughout the land. It is not my intention to trench in any way upon the work which will be undertaken by the Public Health Section, nor to traverse any of the ground which may be occupied by the able Officer of Public Health who will address you on Friday. But we have now had some experience of how this recent act is working, or is likely to work as it at present stands, and the subject has a further interest and importance in view of the International Congress which is to meet so soon in London.

An investigation of the present position will convince us, I think, that so far as the English act is concerned the result is not satisfactory. Local government has been very largely extended by that act, and there is no doubt that, as time goes on, the powers given to county councils will be very much increased. So far as the appointment of medical officers of health is concerned the power is optional, and consequently the result is as yet practically nothing.

In the act for Scotland, the section says the council *shall* appoint a medical officer of health. In the act for England, the section says *may*. Let us inquire what is the effect of that one word. A few months ago I sent a letter containing a few queries to forty-eight county council authorities. This was done, not with any idea that we might discuss the question to-night, but to get information for the guidance of the Council of Hampshire, which was considering the question. In thirty-seven counties nothing whatever was being done; in four counties the subject was under consideration; in seven counties appointments had been made under the act, at salaries from £800 a year and £200 allowance for expenses, in Staffordshire, downward.

It can not therefore be said that the county councils have, for the most part, taken any active steps; in most cases we have shown that they have taken no steps whatever in the direction of appointing county medical officers of health. This apathy may have a triple cause. It may arise from (1) a want of interest about sanitary work; (2) satisfaction at the present state of sanitary supervision and the present position of medical officers of health; or (3) from the feeling that the powers vested in the councils are not such as to make it worth while to appoint any such officials.

Let us look at each of these a little in detail. We have to acknowledge that in our small towns and country districts there is a want of enthusiasm in sanitary work. Much of this is no doubt due to general causes, a disinclination to interfere with property, a certain skepticism as to results, an aversion to laying out money for a distant object, a hopeless kind of apathy which justifies itself by saying that things are not so bad as they were. The existence of such feelings will only too powerfully help to maintain the present state of matters. No one can study the history of sanitary effort in the building up of sanitary institutions without profound emotion; the interests imperiled are so vast, ignorance and prejudice so fatal. We, in our individual capacities, dealing with men; we—a great association, using wisely the great powers of which, in combined action, we are possessed—may do much to remove this apathy; may do much to instruct this ignorance; may do much to destroy these prejudices. Much ignorance, which seemed to be invincible, has been overcome. Many obstacles, arising out of human will, have been removed, and, in the words of that true friend to sanitary progress, the late Dr. Farr, "it will well become England to employ the powers science and wealth have placed in her hands for healing men, and for developing the physical and divine faculties of the human race. Should her example excite emulation in other countries we shall see, besides the great struggle for the supremacy of races, common efforts to improve the conditions of life, to diffuse knowledge, to mitigate human suffering, to increase virtue, to elevate intelligence, and thus to conquer the standing armies of disease and death—works of vaster amplitude and greater difficulty than the capture of cities or the subjugation of nations."

The second cause I have stated to be satisfaction at the present state of sanitary supervision, and with the present position of medical officers of health.

It is to be noticed that from its earliest beginnings to its latest development sanitary administration has been linked with the Poor Law, and at the present day, in almost all cases, the rural sanitary authority is the Board of Guardians, and the area is the Poor-law union. This is not an arrangement that could be permanently satisfactory. The Local Government Board, as constituted by the Act of 1871, was to all intents and purposes the Poor-law Board with certain sanitary powers and responsibilities added to it. The secretariat of the new board, to whom is delegated the power to act in all but the most important matters, was formed out of the secretariat of the Poor-law Board, without any admixture of a medical element, and so it remains to this day. The medical department has no secretariat of its own; it is purely consultative without any independent initiative. Hence follows the curious result that sanitary matters are administered by persons having no special knowledge of the subject at all, whose indorsement of an official paper carries no additional weight with it whatever. I do not for a moment suggest that the Public Health Act, with its three hundred and forty-three sections, which consolidated no fewer than twenty-two Acts of Parliament, was not a most important act, and constituted a great advance on the previous state of things; but I wish to urge that no finality was reached, or was indeed likely to be reached, on these lines. The difficulties of dealing satisfactorily with this subject are, of course, immense, but these must not deter us from seeking to perfect our machinery, and from striving to arrive at better results. There are difficulties from the side of the legislator; there are difficulties from the side of the medical officer.

I quote from an address on this subject, delivered in 1887 by one of our greatest living authorities as a politician and an administrator, though not as a man of science, and who himself had a good many years' experience at the head of the Local Government Board—I mean Lord Basing. He says: "We are evidently face to face with two powerful currents of sentiment and opinion running counter to each other; on the one hand, the true-born Briton is apt to resist and resent undue interference with himself, his personal freedom in things indifferent, and with the self-governing authority of which he is a member or elector. On the other hand, there is certainly a growing tendency to look to the Government for help, for direction, and pecuniary assistance in the hour of difficulty and danger, and, moreover, to hold the Government responsible for all calamities which occur, local as well as imperial." And again he says: "How long and to what extent will the medical profession be satisfied to sit at the feet of Gamaliel in Whitehall, and to accept without question the inquiries and reports published at the public charge by persons who, as time goes on, will be under the disadvantage of standing more and more outside of the regular practice of their profession?"

In an article in a recent number of the *Nineteenth Century* the Hon. Rollo Russell speaks of our present sanitary administration as an incoherent jumble. It seems scarcely credible, but it is a fact, that many medical officers are appointed by their enterprising districts at salaries of £20, £15, £10, and even £5 a year, and, what is worse, are often reproved if they make their office, which ought to be a distinguished and beneficent one, anything but a sinecure. This condition of things under the Public Health Act can not, therefore, be called satisfactory; but the Local Government Act gives the county councils no real powers, and hence it is that in most cases no action has been taken. Section 17 of that act provides that the council of any county may, if they see fit, appoint and pay a medical officer of health or medical officers of health, who shall not hold any other appointment or engage in private practice without express written consent of the council. I have already shown that the large majority of county councils have not seen fit, and so have not made any appointments under this act.

But the further provisions of this act are a little curious. English medical officers of health for a district in any county are bound under Section 19 to send to the council a copy of every periodical report which is required by the regulations of the Local Government Board to be sent to that board, and, if any medical officer fails to send such copy, the council may refuse to pay the contribution which otherwise it is bound to give toward the salary of such medical officer. In such case the council retains such money, and may apply it to any other purpose; but if the Local Government Board reports to the council that a medical officer of health has not sent to it—that is, the Local Government Board—a copy of his report, then the contribution is forfeited to the Crown.

These reports having been received by the council of any county, it may, if it finds anything unsatisfactory therein, cause a representation to be made to the Local Government Board on the matter; but it is not bound to do anything, and, as a matter of fact, in most councils no machinery exists for dealing in any way with these reports, and so they lie on the table—more correctly, perhaps, they are put under it. In this county these reports are now referred as a matter of course to a particular committee, whose duty it is to deal with them, and a sum of money is voted by the council to procure skilled professional assistance to enable this committee so to do; but in many counties no such step even as this has been taken, and the sections of the act dealing with the question remain a dead letter. Ought this condition of things to be allowed to continue? No thoughtful man among us will, I think, be of opinion that it should; and if that be so, then it is our duty to give the Legislature no rest until these clauses have been reformed, and the whole subject put on a more satisfactory basis. I commend to your consideration such modifications as the following:

1. That the appointment of medical officers of health by county councils be obligatory in England as it is in Scotland.

2. That these appointments once made shall not be upset, except by the central authority, as has been provided by the Public Health Bill for London.

3. That the salaries attaching to such office be sufficient to attract highly educated and efficient men, and that they be called upon to devote their whole time to the duties of their office.

4. That every part of the kingdom be brought into sympathetic communication with the Central Board, upon which the medical element shall have real and substantial power.

I have given you, crudely and hurriedly, some of the ideas which have lately been passing through my own mind. Every one must at least admit the importance of the subject. On the medical officer of health depends in a very large degree the motive power of sanitation, and for this purpose he should not only be highly trained, but he should be appointed over an area large enough to require his whole time, and he should occupy a position independent of all local jealousies, and freed from such restraints as the present uncertain tenure of his office inevitably causes.

It is not Utopian to declare that with improved organization and increased scientific control, zymotic diseases would in a few years be reduced to very small proportions, and every district in the land would be relieved from ever-threatening causes of trouble and distress.

Among the many avenues which are continually opening up through which our great association may exert its influence, by educating public opinion and bringing pressure to bear upon the legislature, I know of none more important than this. It is a grand and a glorious work to battle with disease and to alleviate human suffering, but it is a grander work still to prevent disease from spreading its dire effects upon the population, and in helping to forward that time when maladies which are classed as preventable shall be stamped out in their very beginnings, and shall be known only as matters of historical interest.

Is there any disease that would excite a greater interest, were a case exhibited at our meeting, than one of leprosy? Yet there was a time when leper hospitals in England were numbered by the hundred, and at the Priory Church of Christchurch, not five miles off, you will see a leper's squint. Let us look forward to the time when many of these maladies will be as rare as leprosy is now. One of the most powerful means in bringing this to pass will be the wise application, through sanitary legislation and through an improved medical officer of health service, of those advances in scientific knowledge which are being gained by the patient and painstaking researches in preventive medicine.

But I have detained you too long; the British Medical Association is met in another annual congress. These annual meetings are calculated to do a vast amount of good. An organization now 13,800 strong and with ramifications throughout the British Empire must be powerful. Let us see to it that we exercise these powers for good. We have here representatives whom we welcome from our branches beyond the seas. In distant lands our members are upholding the honor of British physic, and through their delegates they are stretching out to us a hand of brotherly affection and interest. We have also here friends whom we heartily welcome of other nationalities. We are all met to spread the truths we know, and to hear from others the truths they have to tell. In the giving, as well as in the receiving, we shall increase our own store. By our discussions we shall help to elicit the truth from the conflicting statements of what is the truth. We are knit together by the common brotherhood of a great and grand profession, we are still further knit together by the bonds of membership of this association. Meeting each other socially, as well as in our scientific encounters, prejudices are removed, old friendships spring afresh, new friendships are formed, our professional la ors receive a higher consecration, and we return to our respective spheres stimulated to devote ourselves with increased earnestness to the work given us to do.

I went my way, and as I went I felt
How well it was that the work-weary soul
Should have its times to set its burden down.

The Address in Medicine of the British Medical Association.—The same journal has kindly furnished us with proof-sheets of the following address, by T. Lauder Brunton, M. D., D. Sc. Edin., LL. D. Aber., F. R. C. P., F. R. S., lecturer on materia medica and therapeutics and assistant physician, St. Bartholomew's Hospital:

When friends meet again after a prolonged separation they almost invariably begin to talk about the changes that have occurred since they parted. In a few weeks more it will be just a quarter of a century since the president of this Association and I occupied adjacent rooms in hospital as fellow resident physicians, but since then our spheres of work have kept us much apart. It is therefore natural that I should take as my subject of address to-day the changes that have occurred in the profession to which we both belong during the time that has elapsed since we were comrades together.

Perhaps there is no period in the whole history of medicine in which such rapid changes have taken place as in the last five-and-twenty years. It is impossible to give anything like a complete account of these in the brief space of one hour, and I shall therefore restrict myself to a few of the more prominent points, and especially those that have come directly under my personal cognizance; for, like the man who made one half of his fortune by attending to his own affairs and the other half by leaving other people's alone, I may probably utilize the time at my disposal best by speaking of what I know myself and leaving other things out.

Advances in Knowledge and Teaching due to Experimental Method.—These changes have occurred both in the profession itself and also—to some extent in this country at least—in the education and training of the men who enter it. We notice, first, that a very great increase has occurred in the knowledge of the nature, causation, and treatment of diseases possessed by the profession as a whole, but perhaps a still greater gain is in the general adoption of the experimental method by which most of our recent knowledge has been acquired, and from which we may hope even greater advantages in the future. In correspondence with the acquirement of knowledge, we notice also a great alteration in the teaching of medicine, and especially prominent is the tendency to make such teaching practical instead of theoretical by training men to place their dependence upon objective facts, and not to receive without experimental data the theories or speculations of any master, however great he may be.

Practical Training.—Five-and-twenty years ago, not only was practical training such as we now find in the scientific departments of medicine—chemistry, physiology, pathology, and to a certain extent also pharmacology—almost entirely wanting, but even in general clinical medicine, not to mention the special departments of the throat, eye, and ear, it was very deficient as compared with what it is now. The greatest advance made in the last quarter of a century has been in the direction of the accumulation, co-ordination, and teaching of facts instead of theories, of the phenomena of Nature as opposed to the fancies of the human mind.

Co-ordination of Facts.—But the mere accumulation of facts is of little use unless they can be so arranged, compared, and grouped as to bring them into relationship with some general law, and this we find in the world's history has been done from time to time by some mastermind. In the case of medicine, this has also occurred to a great extent during the last five-and-twenty years.

Influence of Darwin.—Medicine, both in its principles and practice, is really a subdivision of biology, and this, like all other branches of knowledge, has been most profoundly modified by the general acceptance of Darwin's great thoughts—the doctrine of evolution, the struggle for existence, and the survival of the fittest. Wherever we turn we find that Darwin's influence has modified the direction of thought, and whether the study concerns the evolution of the elements, the evolution of the planetary systems, of living beings, of communities, of customs, of laws, of literature, science, or art, in every department of human knowledge we find that men, consciously or unconsciously, are influenced by Darwin's work. It is with shame I confess that five-and-twenty years ago, although I had taken a university degree not only in medicine but in science, and might therefore be supposed to be acquainted with his work, I did not even know of the existence of his *Origin of Species*, and I first heard its name in Vienna from the lips of an Austrian who was speaking of it in terms of the highest praise. "What is it?" I asked, and my question then seemed to cause my foreign friend as much astonishment as it causes myself now when the possibility of such ignorance seems to me, as it must to you, almost incredible, and yet such was the fact. The publication of Darwin's *Origin of Species*, in 1859, has done more to change the current of human thought than anything else for centuries, but while its influence is everywhere felt, biology and all its subdivisions have been more especially affected.

Changes in Medical Students.—But, great as the changes had been during the last five-and-twenty years in the profession itself, they are perhaps quite as great in the men who enter it. The days when Bob Sawyer was taken as a type of a medical student have long since gone by, and I should think in all probability there is no class in which one can find so many gentlemanly, thoroughly well educated and hard-working men as among the medical students of the present day.

The change began rather more than five-and twenty years ago, for it was in 1861 (?) that the General Medical Council passed the regulation that before entering on the medical profession each student should pass a preliminary examination in general education. This rule came into force in 18—; and while our president and I were at college together we had among our fellow-students two classes—one consisting of men who had not passed a preliminary examination, and called Old Statutes, and the other of those who had passed, called New Statutes men. The class of Old Statutes men was a very mixed one; many of them, of course, were exceedingly good, able, energetic, and industrious, but a number were also lazy and idle, while some of them were distinctly dissolute and disreputable. The New Statutes men, on the contrary, were, upon the whole, steady and hard-working. The reason of this was that under the Old Statutes parents frequently thought that when a boy failed to learn anything at school and was too unsteady to hope for success in commerce, he was good enough to make a medical student of. The preliminary examination at once cut out all those who, by their idleness or stupidity at school, were unable to come up to the required entrance standard. Some of the idlest of our fellow-students under the old statutes, after studying for several years and failing to pass their examinations, drifted into other occupations. Others, again, after repeated trials, managed to scrape through their examinations and entered the profession. Probably some of those who have supplied the lack of book knowledge by experience gained in practice still survive and flourish, but most of the Old Statutes men now engaged in practice belonged to the better class, and would have gained access to the profession no matter how difficult the examinations might have been. There may be a very few exceptions, but I think we may be quite sure that nearly all those who are now thriving have either thorough knowledge or much *savoir faire*, for incompetent men get weeded out in the struggle for existence, which in the medical profession is a very hard one, and of late years has been getting harder and harder.

Struggle for Existence in the Profession.—I was much struck a year or two ago with the evidence of this severity which I saw in the house of a medical man residing in the neighborhood which had gradually deteriorated. This doctor had a large practice, and was very hard-worked, but his fees were small; and, in order to educate his children, some of whom were in the profession, expenses had to be greatly retrenched at home. The house was large, and at one time had been tastefully decorated, but the paint was faded on the walls, the carpets were worn threadbare, and the furniture was poor and old. The severity of this struggle is, no doubt, due to the excessive number of men who have been entering the profession notwithstanding the barriers raised by the entrance examination; for this very barrier, by raising the quality of the men, has naturally raised the estimation in which the profession is held, and has, therefore, made it more attractive. But the excessive severity of the struggle, on the other hand, has a tendency again to lower the profession by rendering it so difficult for medical men to make a bare living that they are sometimes tempted to think more of their fees than of the welfare of their patients, and occasionally to resort to such means of making money as tend to bring discredit both on themselves and on the profession to which they belong. It is possible that the new regulation of the Medical Council requiring a five years' curriculum may tend to lessen this evil by preventing so many men from entering the profession. This longer curriculum is becoming absolutely necessary on account of the rapid progress which is being made in medicine and the time required to master the increased knowledge, not only regarding the nature of disease and the means of treating it, but regarding the means of ascertaining its presence.

Long ago the doctor's means of diagnosis consisted in inspecting the tongue, feeling the skin, counting the pulse, shaking the urine, and looking at the motions and the sputum. But now, in addition to a thorough training in auscultation and percussion, students have to learn the use of the laryngoscope, ophthalmoscope, and otoscope, and the application of electricity. They have to acquire a knowledge of the chemistry of the urine and its alterations in disease, and, what takes still more time, they have to learn the microscopical appearances, not only of the tissues and excretions in health, but their alterations in disease, and must be acquainted with the methods of staining so as to detect tubercle bacilli and other disease germs.

Apparent Change in Disease.—Increased knowledge of diagnosis has led to an apparent change in the mortality of different diseases. Thus, the frequency of deaths from heart disease appears to be much greater, and that from apoplexy much smaller now than fifty years ago. In all probability this difference is not real, but only apparent, and is due to the more accurate diagnosis by which the presence of cardiac disease is now ascertained. The supposed increase in the frequency of cancer is probably in great measure due to a similar cause, for I am quite certain that many cases which were formerly classed as chronic diarrhœa, dysentery, jaundice, or dropsy were really due to malignant disease of the abdomen, while others probably depended upon unrecognized disease of the kidney; for up to a recent date so little attention was paid to the condition of the urine that about fifteen years ago, when examining proposers for life assurance in place of a friend who was away on his autumn holiday, I was astonished to find that there was no apparatus at the office for examining urine, and I believe that it is only within the last ten or twelve years that an examination of the urine for life assurance has become general.

Real Changes in Disease.—But real changes as well as apparent ones have occurred in diseases. Some have become more frequent and others are rarer. Thus typhoid fever is almost certainly more common, because the increase of our sewage system has given greater facilities for its spread. Typhus fever, on the other hand, has become comparatively rare, and the story of its extermination in Edinburgh is very interesting. Five-and-twenty years ago your president was constantly wearing a smoking-cap because his head had been shaved during an attack of typhus, and a few months later one of the physicians and two of the house physicians to the hospital in Edinburgh died of the disease, while one just escaped with his life. There were, I believe, at the end of 1867 nearly one hundred and fifty typhus patients in the hospital at once. A few years later the disease was completely exterminated by the alterations in the town necessitated by the new university buildings. A certain narrow lane, called Hastie's Close, which was a hotbed of typhus fever, and from which the disease used to make periodical excursions into the neighboring districts, was pulled down, and since then typhus has almost entirely disappeared. Pyæmia is another disease which, although not totally extinct, is very greatly lessened in virulence. When I was a student it was the dread of the surgical wards, and I remember one patient dying of it who had been admitted simply for a slight injury to the finger tip, which necessitated amputation of the last phalanx. Now, thanks to the antiseptic treatment introduced by Lister, such cases are almost unknown.

Departments of Greatest Advance.—Five-and-twenty years ago we knew only too well that typhus was infectious, and that pyæmia and erysipelas were likely to spread in a ward when once they got into it, but we did not know then the causes of these disease as we do now, nor had we the same means at our disposal wherewith to combat them. The departments in which the greatest advances have been made within the last five-and-twenty years are in those of fevers and diseases of the nervous system. A new era in the study of the latter was foreshadowed by the experiments of Fritsch and Hitzig on the brain of the dog; but it can only be said to have fairly begun with Ferrier's localization in the brain of monkeys of the cortical centers, both motor and sensory, for the brain of the dog was too unlike that of man for experiments upon it to be of much practical use in the diagnosis of human ailments, while the likeness in the brain of the monkey to that of man at once allowed conclusions drawn from the experiments upon the former to be transferred upon the latter. Yet, if we try to describe in one word the department in which medicine has made the greatest progress within the last quarter of a century, that word must be "fevers"; for during this time we have learned to recognize fever by the use of the thermometer in a way we never did before; we have learned the dependence of the febrile process in the great majority of cases upon the presence of microbes in the organism, and we have become acquainted with an immense number of chemical substances which have the power both to destroy the microbes and to regulate the febrile process.

Introduction of the Thermometer.—It is true that the thermometer was used by Danielssen, in leprosy, before the year 1848, and its more general use began with Wunderlich's observations nearly thirty years ago, but it is only within the last five-and-twenty years that its use has become at all general. It was only during the latter period of my service as house physician that the clinical thermometers introduced into this country by Aitken came into use in the Edinburgh Infirmary, and cumbersome instruments they were, for they were nearly a foot long, and I used to carry them about the wards under my arm in a case big enough to have held a set of amputating instruments. Their size and brittleness combined were a complete obstacle to their general employment in practice, whereas the small, accurate, and yet moderately priced thermometer is now to be found in every doctor's waistcoat pocket. During one of the last years of my student life I saw a man suffering from double pneumonia nearly die, his life being saved by the accidental presence of a Swedish doctor. The man was completely comatose, and every one thought he would die; but the Swede, who had seen similar cases saved by bleeding and cold effusion, proceeded to apply these remedies with complete success. No one who witnessed the wonderful way in which the man was snatched from the jaws of death could fail to be deeply impressed by the scene, but no one knew then why the man was dying or how the remedial measures acted. Now the use of the thermometer enables the merest tiro to recognize such a case as one of hyperpyrexia saved by the abstraction of heat. The constant employment of the instrument shows every one, nurses as well as doctors, when the temperature of a patient is rising so high as to be dangerous, and allows them in many, perhaps in most, cases to prevent a further rise by the use of antithermic measures, such as cradling, cold sponging, cold effusion, cold baths, or by the administration of antipyretic remedies.

Nature of Fever.—The thermometer has not only enabled us to detect the onset and to watch the progress of fever, but, in conjunction with microscopical research, physiological experiment, and chemical analysis, it has enabled us to gain a fuller knowledge of the nature of the febrile process itself. We know that during it the organism is consuming rapidly, or, as Dr. Donald MacAlister graphically says, it is like a candle burning at both ends, and we have learned scientifically the reasons for the practical, of which Graves was so proud that he wrote as his own epitaph, "He fed fevers." We have learned also, to a great extent, the necessity for the elimination of the waste products, or ashes as we may term them, which the excessive combustion produces, and thus we know why the surgeon is so anxious regarding the result of an operation when the kidneys of his patient are inadequate; for, if any febrile attack following the operation should lead to increased demands upon these secreting powers, they might fail to meet it, and the retained excreta would poison the patient.

New Methods.—The rapid increase in our knowledge has been due not merely to the constant use of old methods, but to the introduction of new ones, and more especially to the general recognition of the fact that the same strategy which has often proved so successful in war is to be applied in attacking complex problems. They are to be separated as far as possible into their several components, and each of these is to be overcome in detail. As presented to us by observation at the bedside, the problems of disease are too complex for us to solve, and we are only succeeding in doing it by examining the various factors one by one in the laboratory. The greatly increased powers of the microscope and the better methods of illumination have been of the greatest service, but their utility would be very much less than it is had it not been for the general introduction of the microtome and the invention of new methods of staining. When I was a student the microtome was only used for cutting sections of wood in the class of practical botany. About that time it was employed by Mr. Stirling, Professor Goodsir's assistant, in the preparation of animal tissues, but I believe that we owe its general introduction to Professor Rutherford. The facility with which sections are made by it has made microscopical research much less tedious, and has enabled trained histologists to do more work in a given time, and medical students to acquire knowledge more rapidly. But without the method of staining introduced by Weigert and Ehrlich we should, even with the best microscopes, be unable to recognize most of the microbes which are so important in the causation of disease.

Good out of Evil.—It is very interesting to see how good may come out of evil, and a striking illustration of this is afforded by the history of medicine in the period we are now considering; for it seems to me that we can trace a great part of our knowledge of disease germs and of the antiseptic remedies we use in treatment to the cupidity and stupidity of the Spaniards of the Cordilleras. Their cupidity led them to cut down the cinchona trees of the Andes in order to fill their pockets with the gold they received in exchange for the precious bark, while their stupidity prevented them from planting new trees to replace those which they felled. The consequence of this was that quinine became so dear that it was evident that any one who could produce it artificially would make his fortune. Among others, Perkins tried to do this, and, although he failed, yet in the attempt he discovered the aniline dyes, whose staining powers have not only helped us so much in ordinary histological research, but have made it possible to distinguish disease germs which without them would have been invisible. But the discovery of the aniline colors was only one outcome of the attempt to make quinine synthetically, for the impulse which it gave to the study of aromatic compounds has led to the production of salicylic acid and acetanilide, antipyrine, phenacetin, and all the other antipyretic remedies whose number is probably legion and whose names already have become so numerous as to be troublesome. Here we see good has arisen out of evil; for, if the price of quinine had not been so high, the researches which have proved so useful might not have been begun even yet.

Small and Great, Foolish and Wise.—In looking at another of the greatest advances which medicine has made—namely, the knowledge of infective disease—we can see how enormous results can arise out of very small beginnings, and the safety of nations may be consequent upon a research which many men would have termed useless or even frivolous. I can hardly fancy any better illustration of St. Paul's observation about the foolish things of this world confounding the wise than Pasteur's researches on tartaric acid; for what could seem more foolish to the so-called practical man than the question, "Why does a crystal of tartaric acid sometimes take one shape and sometimes another?" Yet from an attempt to answer this question has arisen the whole of Pasteur's work on fermentation in general, and on that of wine, beer, and vinegar in particular, whereby he has been able to save millions to his country by accelerating the production of vinegar and preventing the souring of wine and beer. His observation that tartaric acid sometimes turned the ray of polarization to the right, sometimes to the left; that, indeed, there were two crystals apparently alike, but really different; and that these could be combined so as to form a symmetrical crystal having no power of rotation, led him to look to life and living beings as the source of asymmetry. He tried to produce this asymmetry in salts of tartaric acid by fermentation, and found that during the process an organism developed which eats up the dextro-tartaric acid and leaves the lævo-tartaric acid behind. This led him to investigate such minute organisms, and, by simplifying the soil in which they grew, and separating the organisms one from another, he learned the conditions of their growth and showed that most processes of fermentation were due to the presence of living organisms. It is true that while Pasteur was still a boy at school, Peyen and Persoz had shown that the liquefaction of starch and its conversion into sugar was due to diastase, and that Dumas, in a report of a paper by Guerin-Varry, had pointed out that, although unlike diastase, the active principle of the gastric juice had not been isolated, it was probably a ferment of a somewhat similar kind. Dumas classed yeast as a ferment along with diastase, and the fact that such a process as conversion of starch into sugar could be effected without a living organism, naturally rendered it all the more difficult for Pasteur to prove his thesis that most fermentations were due to living organisms.

Chemical and Biological Views of Fermentation.—The two views of the action of ferments—namely, the chemical and the biological—may, I think, fitly be likened to Pasteur's two kinds of tartaric acid, each of which is lopsided and incomplete by itself, and only when united forming a symmetrical whole. There can be no doubt of the truth of the chemical view that diastase is not a living organism, and yet converts starch into sugar. There can be as little doubt of the biological view that yeast and other organisms which cause fermentation are living bodies, and that without the presence of these living bodies alcoholic, acetic, and other forms of fermentation would not exist.

Microbes and Enzymes.—But recently we have come to recognize that these living organisms may produce their effect by manufacturing chemical ferments, and that these ferments may occasionally do the work, although the organisms which form them may be absent. It is quite true that it is difficult—perhaps impossible—to get fermentation from the dead yeast plant, but we find a parallel for this in the fact that the pancreas of the higher animals sometimes yields an active ferment and sometimes not. Nor need we wonder that the ferments produced by microbes have but a slight action compared with those of the microbes themselves, if we remember how very little power of digestion a dead pig's stomach has as compared with the amount which can be digested not by the live animal itself only, but by the herds of swine consisting of its "fathers and mothers, its brothers and sisters, its cousins and its aunts," during all the term of their natural lives; for in the process of fermentation microbes are growing, fermenting, and dying with great rapidity, and many generations occur in a fermenting fluid in the space of a few hours, so that the total effect they produce will be out of all proportion to any which can be got from the microbes themselves at a single instant.

Microbes and Disease.—From organisms as a cause of fermentation and of the diseases of wine and beer, Pasteur went on to investigate their action as causes of disease in living beings—first in the silkworm, next in the lower annimals, and lastly in man. He established the dependence of the silkworm disease and of anthrax upon the presence of specific microbes which could be transmitted and communicate the disease, and by destroying the infected eggs of the silkworm he eradicated the disease and restored the silk industry to France.

Weakening of Disease Germs.—But while this investigation is interesting to us as illustrating the probable cause of the disappearance of typhus fever, to which I have already alluded, Pasteur's researches on anthrax are still more important as bearing upon the question of protective inoculation; for he found that the disease germ could be cultivated outside the living body and grown in flasks under varying conditions, some of which were favorable and others unfavorable to its growth. High temperature enfeebled the virus, so that it no longer killed an animal with the same certainty, and, by inoculating first with a weak virus and then with one successively stronger and stronger, he found that animals could be completely protected either from inoculation by the strongest virus or by infection from other animals suffering from the actual disease.

Increase in Virulence of Disease Germs.—Another extraordinary fact which he made out was that the virus thus weakened so that it will not kill a guinea-pig a year old, and still less a sheep or ox, may again be rendered most potent by inoculating a feeble annimal, such as a guinea-pig a day or two old, from this older and stronger guinea-pig's the strength of the disease germs increasing with every inoculation, until finally sheep and cows may be killed by it. We can thus see how an epidemic of disease beginning sporadically and attacking weak individuals may gradually acquire such strength as to attack and carry off the strongest.

Pure Cultures.—Pasteur's plan of growing disease germs outside the body in broth, although of the utmost value, did not allow a convenient separation of different germs; but this can now readily be done by Koch's plan of sowing them, not in a liquid medium but on solid gelatin spread on glass plates, so that the growth of the germs can be daily watched under the microscope and inoculations made from single colonies on other plates until pure cultures have been obtained. By thus isolating the different microbes we learn their life-history, the mode in which their growth is influenced by differences of soil, of temperature, of moisture, by the addition of various substances which either favor or retard their growth, and, last but not least, the effect which one microbe has upon another when they are grown together at the same time.

Struggle for Existence among Microbes.—For even among these minute organisms the struggle for existence and the survival of the fittest exists, like that which Darwin pointed out so clearly in the case of higher plants and animals. When two microbes are growing together, one may choke or destroy the other, just as weeds in a garden may choke the flowers, or, on the other hand, successive generations of one microbe may render the soil suitable for another, just as decaying algæ and mosses may furnish mold in which higher plants can grow.

Struggle for Existence between Microbes and the Organism.—But it is not merely between different species of microbes or different cells in an organism that this struggle occurs. It takes place also between the disease germs and the cells of the organism which they invade, and the result of the struggle may be determined, not by some powerful agency which weakens or destroys either the organism or the microbe, but by some little thing which simply inclines the scale in favor of one or the other. Thus, in the potato disease the victory of the invading microbe and the destruction of the potato, or the death of the microbe and the health of the tuber, may depend upon some condition of moisture or possibly of electrical change in the atmosphere which aids the growth of the microbe disproportionately to that of the potato. These atmospheric conditions need not necessarily be antagonistic to the potato; they may even in themselves be advantageous to it; but if they help the microbe more than the plant, the microbe will gain the victory and the plant be destroyed.

Fight between Cells in Higher Organisms.—The fight between the organs which Æsop describes in his fables actually occurs between the cells in some vertebrate animals, and the schism predicted by St. Paul as the result of such a fight actually takes place; for in the tadpole, at one stage of its existence, some of the cells at the base of the tail begin to eat up others, with the result that schism occurs and the tail falls off.

Phagocytosis.—This struggle for existence between the cells of an organism and microbes has been beautifully shown by Metschnikoff in the daphne or water flea, where the process of the cells eating up the microbes or the microbes destroying the cells can be actually observed under the microscope. This process of phagocytosis is now regarded by many as only a small part of the struggle between an organism and a microbe, but it is impossible to see one part of a microbe half digested by the cell in which it is imbedded, while the part outside half remains unaltered, without believing that the process is one of great importance. At the same time, it seems that the process of phagocytosis, where the microbe and the cells meet in close conflict, bears about the same relationship to the total struggle that a bayonet charge bears to a modern battle. The main part of the fight is really carried on at some distance by deadly weapons, by bullets in the case of the soldier, and by ferments, poisonous albumoses, and alkaloids on the part of the cells and the microbes. In some of Metschnikoff's observations we can almost see this process, for he has figured leucocytes dead, and apparently burst by the action of conidia, lying close to but yet outside them, as if these conidia, like the dragons of fable, had spit out some venom which had destroyed them.

Venom of Microbes.—Within the last few years attention has been gradually becoming directed less to microscopical examination of the microbes themselves and more to chemical investigation of the ferments and poisons which they produce; yet, strangely enough, the very moment when chemistry is becoming more important than ever has been chosen to minimize the teaching of it in medical schools, and examination in it by licensing bodies. It is now possible to separate the albumoses and poisons from the microbes which produce them either by filtration, or by destroying the microbes by graduated heat; for, as a rule, they are destroyed by a lower temperature than the albumose or poisons which they form.

Microbes and Enzymes.—As the albumoses produced by microbes are nearly allied, chemically and physiologically, to those formed in the alimentary canal of the higher animals by digestive ferments, it is natural to suppose that microbes, like the higher animals, split up proteids, starches, and sugars by enzymes, which they secrete, and which in both cases may be obtained apart from the living organisms which produce them; that, in fact, we should be able to isolate from microbes bodies which correspond to pepsin or trypsin, just as we can isolate these from the stomach or pancreas of an animal. In some, although not in all cases, this attempt has succeeded.*

Poisonous Albumoses.—The albumoses produced by microbes resemble those formed during normal digestion in being poisonous when injected directly into the circulation, although they may not be so greatly absorbed from the intestinal canal. One of the most remarkable discoveries in regard to albuminous bodies is the fact that some of them which are perfectly innocuous, and, indeed, probably advantageous to the organism in their own place, become most deadly poisons when they get out of it. Thus the thyreoid and thymus glands, which are perfectly harmless and probably useful, were found by Wooldridge when broken up in water to yield a proteid which instantaneously coagulated the blood if injected into a vein, so that the animal died as if struck by lightning, while Schmidt and Mühlheim, under Ludwig's direction, found that peptones had an exactly opposite effect, and prevented coagulation altogether.

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* *Vide* Brunton and Macfadyen, Croonian Lectures on Chemical Structure and Physiological Action, *British Medical Journal*, June 15, 1889, p. 1336.

Neutralization of Poisonous Albumoses.—Perhaps the analogy is too vague, but we seem to find here something very like Pasteur's two kinds of tartaric acid, one rotating polarized light to the right, the other to the left, but, when united together, having no action at all, for here we have two bodies, one of which destroys coagulability entirely, the other increases it enormously; while many albuminous bodies have no action upon coagulation whatever. This view would lead us to suppose that one form of albumose may neutralize the action of another, thus rendering them both completely innocuous, while either alone might be a deadly poison.

Zymogens and Enzymes.—Perhaps a similar process of splitting up and recombination may explain the formation and disappearance of the enzymes, such as pepsin and trypsin, by which digestion is carried on. The pancreas of a fasting animal will not digest albuminous bodies like fibrin, while the pancreas of an animal killed during full digestion will do so rapidly. Yet the fasting pancreas contains the zymogen, or mother substance, which yields the digestive ferment, and, as Kühne has shown, by treating it first with acid and then with alkali, it becomes active. Again, to recur to the analogy of Pasteur's tartaric acid, we seem to find that the inactive, and possibly symmetrical, albuminous substance of the fasting pancreas is split up by this treatment after death or during the process of digestion in life, and yields the lopsided and active pancreatic ferment. But, if this be so, what becomes of the other half which has been split off? We do not at present know, but, curiously enough, Lépine has lately shown that while the pancreas is pouring into the digestive canal a ferment which will form sugar, it is at the same time pouring into the circulation another ferment which will destroy sugar.

Immunity.—We must be very careful in our speculations and test them by experiment, but such observations as these may tend to throw some light upon the nature of immunity. Immunity is probably a very complex condition, and is not dependent altogether upon any single factor, but we can now understand that if a microbe has gained an entrance into an organism, and produces a proteid or an albumose poisonous to the organism which it enters, it may grow, thrive, and destroy that organism, while the injection of some other proteid which would neutralize the poison might save the animal while the microbe would perish.

Cure of Anthrax.—Thus Hankin has found that while a mouse inoculated with anthrax will die within twenty-four hours, a rat resists the poison altogether; but if the mouse after being inoculated with the disease has a few drops of rat's serum injected into it, instead of dying, as it would otherwise certainly do, it survives just like the rat, and from the spleen of the rat Hankin has isolated a proteid which has a similar protective action to that of the serum.

Cure for Tubercle.—Working on similar lines, Bernheim and Lépine used the injection of goat's blood in phthisis so as to stop, if possible, the progress of tubercle, and Richet has used the serum of dogs' blood. Lately I have used the serum of goats for a similar purpose, for the goat is quite immune, and the dog is to a great extent, though not entirely, immune from attacks of tuberculosis. The injection of goats' blood in somewhat large quantities has been given up, while dogs' and goats' serum in small quantities of fifteen to twenty minims at intervals of several days is still under trial.

Action of Blisters.—But if immunity can be insured by such slight changes in the organism as a few drops of serum from a rat will produce in the body of a mouse, it is natural to suppose that a similar change might possibly be effected by removing the albuminous substance from one part of the body and introducing it, perhaps after it has undergone slight change, into another. As I have already mentioned, the albumoses of ordinary digestion are poisonous when they are injected into the circulation, and so are the proteid substances obtained from the thyreoid and thymus glands. Why, then, may not the serum of one's own blood, withdrawn from the vessels by a blister and reabsorbed again, be as good as the serum obtained from the blood of an animal? We all know that in many diseases—such as inflammation of the lungs, either pneumonic or tuberculous, in inflammation of serous cavities, such as the pleura, pericardium, and arachnoid, and of solid organs like the liver, or of nerves like the sciatic—the application of blisters is one of the most useful therapeutic means we can employ. In spite of all the changes in medical theory, blisters have always maintained an important place in practice. We have hitherto been in the habit of explaining their action by supposing that they caused derivation of blood from the inflamed part or reflexly caused the vessels to contract and lessened the pressure upon the nerves of the inflamed tissues. But it is quite possible that this may be only a part of the truth and that the good derived from blisters may be due to this form of treatment being really a form of endermic administration of proteid matters derived no doubt from the blood, but altered in their passage from the vessels to the surface of the skin, and thus having an effect upon the body entirely different from what they would have had if they had remained in their ordinary place. It might form an interesting point for investigation for this association how far the beneficial action of blisters is increased or diminished by leaving the bleb untouched so that the serum may be reabsorbed, or opening it and allowing the serum to drain away.

Bleeding.—It is quite possible, too, that the good effects of bleeding may be due to a similar cause. There can be no doubt that this practice has fallen much into disuse, and I think there can be as little doubt that those who used it in former times were not fools, but were led to use it by the marked relief which in many cases it afforded. Experiments upon animals have shown that withdrawal of blood from the veins causes absorption of proteid matters from the tissues, and these may have an action of their own upon the blood and tissues generally with which they are thus brought into contact. Indeed, it is possible that free purgation may be partly due to a similar action.

Speculation and Experiment.—The human body is a most complex piece of mechanism. We learn its action bit by bit very slowly indeed, and we are only too apt to regard the little piece which attracts attention at the moment as all-important and to leave the other parts out of sight. But this is not true of our study of the body only, for the same tendency manifests itself in the pursuit of knowledge of all kinds, yet it is in medicine more especially that this tendency comes to be a matter of life or death, for upon the medical view prevailing at the moment medical practice is apt to depend and erroneous views may lead to the death of many patients. So long as practice depends upon theories, unchecked by experiment, so long will medical practice prove fluctuating, uncertain, and dangerous. One of the greatest gains of the last five-and-twenty years is the general introduction of the experimental method and the habit which has been growing up during it of accepting no statement unless based upon experimental data. Speculations such as those in which I have been indulging in regard to blisters and bloodletting are useful as indicating lines of experimental research, but, until these have been thus tested, it is foolish and may be dangerous either to accept and act upon them as true or to scout them entirely as false and absurd. Imperfect knowledge is almost sure to lead to one-sided practice, and, thus diverging further and further from the truth, ends at last in falsehood and folly.

Antisepsis.—Perhaps no better example of this can be found than antiseptic surgery, from the time of the good Samaritan down to Ambroise Paré and Sir Joseph Lister. The good Samaritan bound up the wounds of the poor traveler, pouring in oil and wine, which, only a few years ago, was recommended in an Italian journal as an excellent antiseptic. Ambroise Paré, when his ointments ran out, could not sleep for thinking of the miserable soldiers to whom they had not been applied, and was greatly astonished to find in the morning that these wretched neglected ones were better and happier than their comrades who had been treated *secundum artem.* I have no doubt that Paré's predecessors, in trying to improve upon the methods of the good Samaritan and upon the still useful friars' balsam, which is a powerful antiseptic but stings the whole wound, had tried to make their applications more and more irritating, not knowing that it was the antiseptic power and not the irritant qualities which were desired. Paré abolished the ointments with the irritation they caused, and thus did great service to surgery. But a greater one yet was rendered by Lister when he recognized that the danger of operations was due to the entrance of germs, and by preventing this has completely revolutionized surgical practice; nay, more, he has to a great extent revolutionized medicine, for the diseases of the internal organs, which were formerly entirely under the physician's care, are now becoming amenable to surgical treatment, and diseases of the stomach, intestine, liver, kidney, and lungs, and even of the brain and spinal cord, are now successfully treated by surgery when medicines are powerless to help. The most remarkable of all the recent triumphs of surgical operations upon the brain in which Mr. Horsley has gained such well-deserved fame, would have been impossible without Ferrier's localization of cortical centers, and would have been equally impossible but for Lister's antiseptic method.

Disinfection.—But it is not only in surgery that recognition of disease germs as a source of danger to the organism has led to their destruction outside the body, and insured safety from their attack. This occurs in all infective diseases, and this term now includes many which were not formerly regarded as such, for neither consumption nor pneumonia were formerly regarded in this light; but just about twenty-five years ago tubercle was shown to be inoculable, and since then the discovery of the bacillus of tubercle by Koch, and of pneumonia by Friedländer, have caused us to class both these diseases as not only infective, but as caused by definite organisms.

Prevention of Epidemic Diseases.—So long as people were ignorant of the causes of epidemic diseases they were utterly unable to combat them, and they either in fury slew defenseless people for poisoning the wells, as in the middle ages, or appointed days of fasting and prayer, as in our own times. But once an epidemic is known to depend upon the presence of a certain organism, precautions can be taken for destroying the organism outside the body by means of disinfectants, or by lessening the susceptibility of the organism to its ravages inside the body by inoculation, or combating its effects by means of antipyretics. A knowledge of the life-history of microbes has enabled us to ascertain the power of different substances, either to destroy them completely, or to arrest or retard their germination and growth, and in this way to prevent the occurrence of the diseases which these microbes might otherwise produce.

Old and New Remedies.—In comparing the drugs at our disposal now with those we possessed twenty-five years ago, we are at once struck by two facts—namely, that we not only have a very much larger number of powerful remedies than before, but that we also know better how to use the old ones. Both of these gains we owe to experimental pharmacology, to the testing of drugs upon the lower animals.

Antivivisection.—Every now and again a loud outcry is raised against this method, partly from ignorance and partly from prejudice. Many—probably most of the opponents of experiments on animals—are good, honest, kind-hearted people, who mean well, but either forget that man has rights against animals as well as animals against man, or are misled by the false statements of the other class. These—namely, those who, blinded by prejudice, regard human life and human suffering as of small importance compared with those of animals, who deny that a man is better than many sparrows, and who, to the question that was put of old, "How much then is a man better than a sheep?" would return the reply, "He is no better at all"—such people bring unfounded charges of cruelty against those who are striving, to the best of their ability, to lessen the pains of disease both in man and also in animals, for they, like us, are liable to disease, and, like us, they suffer from it. I may perhaps be allowed to quote two sentences from a paper which I wrote twenty-four years ago, and therefore a considerable time before any antivivisection agitation had arisen, for they expressed then and they express now the objects of experimental pharmacology. "Few things are more distressing to a physician than to stand beside a suffering patient who is anxiously looking to him for that relief from pain which he feels himself utterly unable to afford. His sympathy for the sufferer, and the regret he feels for the impotence of his art, engrave the picture indelibly on his mind, and serve as a constant and urgent stimulus in his search after the causes of the pain, and the means by which it may be alleviated." *

Gains by Experiment on Animals.—It is said that our mouths are full of promises, but our hands are empty of results. The answer to this is that any one who doubts the utility of experiments upon animals should compare the *Pharmacopœia* of 1867 with our present one. To it we owe, in great measure, our power to lower temperature, for to it is due not only the introduction of new antipyretics such as salicylate of soda, antipyrine, antifebrine, and phenacetine, but the extension of the use of quinine from a particular kind of fever—malaria—to other febrile conditions. To it also we owe our greatly increased power to lessen pain by the substances just mentioned, which have not only an antipyretic but an analgesic action, and give relief in the torturing pains of neuralgia and locomotor ataxy when even morphine fails to ease, unless pushed to complete narcosis. The sleeplessness, too, which is such a frightful complication in some fevers, can now be combated by other remedies than opium and antimony; and we have the bromides, chloral, sulphonal, paraldehyde, urethane, chloralamide, and others which, either by themselves or added to opium, enable us to quiet the brain instead of exciting it to further action, as opium alone so frequently does. Our whole ideas regarding cardiac tonics also have undergone a complete revolution within the last quarter of a century, for I was told when a student that digitalis was a cardiac sedative, and was apt to depress the heart, whereas now we know that it and its congeners—strophanthus and erythrophlœum and sparteine—increase the heart's strength, raise the vascular tension, and are useful not only in sustaining the circulation, but in aiding elimination.

Future of Pharmacology.—But perhaps the most promising thing about pharmacology is that we are now just beginning to gain such a knowledge of the relationship between chemical structure and physiological action that we can, to a certain extent, predict the action of a drug from its chemical structure and are able to produce new chemical compounds having a general action such as we desire—for example, anæsthetics, soporifics, antipyretics, and analgesics—although we have not yet arrived at the point of giving to each one the precise action which would make it most suitable in any particular case. Even when we do not know the chemical structure of a drug we may be able, from noticing one of its actions, to infer that it possesses others. I was led, from the fact that one or two cardiac poisons have a local anæsthetic action, to suspect that they would all have this, and the truth of my supposition has been experimentally demonstrated. The fact, ascertained by Binz, that hydrocelemine alters the blood much in the same way as nitrates led me to suppose that this drug would also alter the blood-pressure like nitrates, and this supposition, which was testified with the assistance of Mr. Bokenham, proved quite correct. We are, indeed, getting a knowledge of the action of drugs both of known and unknown chemical structure and a power of making new remedies which will, I believe, enable us within the next five-and-twenty years to cure our patients in a way that at present we hardly think.

Training of Medical Students.—But the excessively rapid development of medicine and medical sciences requires that men who are entering the profession should not only be taught the things that we know now, but should be so trained as to enable them to keep abreast more or less with medical progress. This, I believe, can only be done by giving them a thorough grounding in chemistry, physiology, general pathology, and pharmacology; and this training must be essentially of a practical nature, not only in the way of demonstrations, but of actual work on the part of the student himself. It is, as I have already said, most extraordinary to find that at the time when chemistry is becoming most essential to medicine some medical boards should so reduce their requirements in the examination on this subject as to render the student's knowledge of it both limited and superficial. But, while chemistry may be regarded as at present badly treated, the same can not be said of histology, and while five-and-twenty years ago comparatively few students possessed a microscope, there is hardly one now who has not only got one at his disposal, but is also able to use it.

The introduction of training in practical physiology, which we owe in great measures to Professor Burdon Sanderson and Michael Foster, has given to the student a basis for his medical studies, such as practical anatomy affords surgery. When I took my degree in medicine I had never looked into an eye, or an ear, or down a throat; but now we have departments for these specialties, and for others, such as the skin and electrical treatment, at most hospitals. I am, unfortunately, unable to give an account of the development of special departments in different hospitals throughout the country, but at St. Bartholomew's there was none for the throat until 1874, when I went to Vienna for six weeks to learn the laryngoscope, and, by the kindness of the governors, on my return I was provided with everything requisite for opening a special department. But this department, while I held it, was used almost entirely for the simple treatment of patients; whereas, by my successor, Mr. Butlin, it has been converted into a means for the instruction of students. It is not, however, in this department only that the cases at hospitals are better utilized for instruction. The same thing has gone on in all departments both general and special, and the change in this respect which I have noticed in the twenty years during which I have seen out-patients at St. Bartholomew's has been very great. Everywhere we find men eager to learn, and the desire for knowledge which they show as students they carry with them into practice, where they read and work in a way that makes one frequently astonished that men, the greater part of whose time is taken up in seeing their patients, can manage to keep themselves so well abreast of all the new discoveries. In doing this, great aid has been afforded to men unacquainted with French and German, by the abstracts of foreign papers published in medical journals and year books, and especially, perhaps, by the *Medical Record*, now unfortunately defunct. Its place, however, has been already filled, and shortly, we hope, will be much more than filled by the *Supplement* to the *British Medical Journal.* Nor is it only in supplying the members of this association with an epitome of current literature that the Council have shown both wisdom and liberality, for, by granting aid to scientific research and to the investigation of therapeutic questions, the British Medical Association has shown a far-sighted policy and a most praiseworthy desire not to be content with merely keeping abreast with medical progress, but to push onward in the van and further by every means in its power the rapid advance of medical knowledge, which is practically the power of rendering aid to suffering humanity. Nor are the periodical meetings of the members of this association without advantage, for journals may remain unread or laid aside for a convenient season which never comes, but the stimulus of personal contact and interchange of ideas tends greatly to further the object which we all have at heart—the prolongation of life, the preservation of health, the alleviation of pains, and the cure of disease.

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* *Lancet*, July 27, 1867.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for August 7th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Aug. 1.	1,515,301	866	80	..	..	..	..	..	7	19	21	11	2
Chicago, Ill.	Aug. 1.	1,099,850	492	29	..	..	..	..	..	36	6	9	2	1
Brooklyn, N. Y.	July 25.	806,343	444	30	..	..	..	..	..	..	7	6	2	3
Brooklyn, N. Y.	Aug. 1.	806,343	484	48	..	..	..	.	..	4	6	12	3	2
St. Louis, Mo.	Aug. 1.	451,770	190	....	..	..	..	..	..	6	..	6	..	....
Cincinnati, Ohio	July 31.	296,908	....	....	..	..	..	..	..	3	2	5	..	1
Pittsburgh, Pa.	July 25.	238,617	136	....	..	..	..	..	..	4	..	5	1	6
Washington, D. C.	July 25.	230,392	121	14	..	..	..		..	3	..	4	1	5
Milwaukee, Wis.	July 25.	264,468	81	....	..	..	..	..	..	2	1	7	..	8
Louisville, Ky	July 25.	161,129	60	5	..	..	..	..	..	1	..	2	..	....
Rochester, N. Y.	Aug. 1.	133,896	75	5	..	..	..	..	..	4	2	1	3	3
Kansas City, Mo.	July 18.	132,716	29	3	..	..	..	..	..	..	..	..	..	1
Kansas City, Mo.	July 25.	132,716	41	8	..	.	..	..	2	..	..	..	..	....
Providence, R. I.	Aug. 1.	132,146	64	....	..	..	..	..	..	1	1	1	1	1
Indianapolis, Ind.	Aug. 1.	105,436	46	4	..	..	..	..	..	2	..	1	..	1
Toledo, Ohio	July 31.	81,434	39	2	..	..	..	..	..	..	..	1	..	2
Richmond, Va.	July 25.	81,388	44	2	..	..	..	..	..	..	..	7	..	....
Richmond, Va.	Aug. 1.	81,388	45	2	..	..	..	..	..	1	..	4	..	...
Nashville, Tenn	July 23.	76,168	42	....	..	..	..	..	..	..	..	..	2	....
Nashville, Tenn	Aug. 1.	76,168	26	....	..	..	..	..	..	2	..	..	..	1
Wilmington, Del.	Aug. 1.	61,431	27	....	..	..	..	..	..	..	..	..	..	....
Portland, Me.	Aug. 1.	36,425	13	....	..	..	..	..	..	..	..	..	..	....
Binghamton, N. Y.	Aug. 1.	35,005	6	....	..	..	..	..	..	1	..	..	..	....
Yonkers, N. Y.	Aug. 1.	32,033	21	2	..	..	..	..	..	..	..	..	..	....
Mobile, Ala	Aug. 1.	31,076	12	1	..	..	..	..	..	..	..	..	..	....
Altoona, Pa.	June 6.	30,337	14	2	..	..	..	..	..	..	..	..	..	....
Altoona, Pa.	June 13.	30,337	11	....	..	..	..	..	..	..	..	..	..	1
Altoona, Pa.	June 20.	30,337	8	2	..	..	..	..	..	..	..	..	..	1
Altoona, Pa.	June 27.	30,337	8	1	..	..	..	..	..	..	..	..	..	1
Galveston, Texas	June 26.	29,084	24	....	..	.	..	..	..	..	..	..	..	....
Galveston, Texas	July 3.	29,084	21	....	..	..	..	..	..	..	1	1	1	....
Galveston, Texas	July 10.	29,084	17	....	..	..	..	..	..	2	..	..	..	....
Galveston, Texas	July 17.	29,084	15	....	..	..	..	..	..	..	..	..	..	....
Auburn, N. Y.	Aug. 1.	25,858	7	2	..	..	..	..	..	..	..	..	..	....
San Diego, Cal.	July 25.	16,159	1	....	..	..	..	..	..	..	..	..	..	....

Muawine, a New Alkaloid.—"Muawine is the name given to an alkaloid contained in the muawi tree, which is found in Mozambique. The rind of the tree is supposed to possess similar tonic properties to the sassy bark (*Erythrophlœum guineense*), but is quicker and more powerful in its action. The free alkaloid is amorphous and syrup-like, readily soluble in alcohol, ether, and chloroform, and closely resembling erythrophleine. None of the salts have been obtained in a crystalline condition. The hydrobromide is a white powder, soluble in water, alcohol, and chloroform. The physiological action of muawine is similar to, but not identical with, that of erythrophleine."—*British and Colonial Druggist.*

Cancer of the Tonsil.—"Dr. Onody showed, at a recent meeting of the Buda-Pesth Medical Society, an old man with a tumor of the right tonsil as large as a small egg, which gave but little trouble, and did not interfere either with respiration or deglutition. It was evidently a scirrhus, but was not operated on on account of the patient's great age and weakness. Subsequently Dr. Josef Neumann mentioned to the society that he had seen no less than three other cases of primary cancer of the tonsil in the Rochus Hospital."—*Lancet.*

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, August 22, 1891.

Original Communications.

NOTES ON A CASE OF INJURY OF THE CAUDA EQUINA AND CONUS MEDULLARIS.

By C. A. HERTER, M. D.,
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The endeavor to make a clinical distinction between lesions of the cauda equina and those of the spinal cord is of very recent date, and more recent still is the attempt to relieve damage to the cauda by operative interference. The considerations which have seemed to justify operations upon the cauda are of the same nature as those that have led to surgical procedures on the spinal cord; but two special considerations have appeared to favor surgery of the cauda. These are, first, that the structures of which the cauda is made up resemble closely the peripheral nerves, and, like these, possess a considerable power of repair—a power incomparably greater than that of the cord; and, secondly, that the course of the nerve-roots that compose the cauda is such as to make it possible for damage to be confined to these roots without involving the integrity of the cord itself.

The general correctness of these views can not be disputed, but they are subject to some important limitations.

Our knowledge of the diagnosis and pathological characters of cauda-equina lesions is still far from complete. We can not, in the first place, locate with absolute precision the situation and extent of a lesion affecting the cauda, and, what is more important from a practical standpoint, we can not distinguish a lesion involving the cauda alone from one which involves both the cauda and the contiguous cord. The pathology of non-traumatic lesions is still obscure; and, of the traumatic cases, we can not distinguish between hæmorrhage and a crush. *A fortiori* we can not distinguish a combination of hæmorrhage and crush from either condition alone. Moreover, our knowledge of the severity of the original damage in traumatic cases leaves much to be desired, and this is an important class of knowledge, since it bears directly on prognosis and treatment. To some of these points I shall return.

The cause of these deficiencies in our knowledge is not far to seek. Small as is the number of cases described as lesions of the cauda, the number in which the diagnosis has been substantiated is smaller still. The reported autopsies in such cases are perhaps a dozen, and of these the really valuable ones may be counted on the fingers of one hand.

It is plain that we must depend for any extension of our knowledge on careful autopsies, with careful clinical histories, and it is equally plain that we may reasonably expect through this means to increase considerably our information along the lines which have been indicated. The following case of injury of the cauda equina throws light, it is believed, on some important points in diagnosis and pathological anatomy:

G. R., aged thirty years, single, stableman, New York. No family history of disease, and no personal history except that of gonorrhœa and the moderate use of alcohol.*

On August 26, 1890, while he was at work in a stable, pushing aside a large door, suspended from the top by rollers and weighing about five hundred pounds, the door became loose and fell, crushing the patient under it. On being released, the patient was taken to the hospital in an ambulance.

On admission, the patient was unconscious. There were several contusions in various parts of the body. In the lower dorsal region, over the vertebral column, was an area of tenderness and pain. There was apparently a slightly excessive projection of the spines of the dorsal and uppermost lumbar vertebræ.

A few hours after admission, when the patient recovered from the shock of the injury, it was evident that there was considerable loss of power in the lower extremities, especially of the foot and leg. The loss was more marked on the left side. The knee-jerks were absent, as were the plantar and cremasteric reflexes. Urine and fæces were passed involuntarily. During several days after admission there was an increase in the paralysis of the legs, but, after about a week had elapsed, a very slow recovery of power began. At the end of two weeks from the accident there was a perceptible though not considerable improvement in power. In the mean time the sphincters remained as much paralyzed as at the beginning. There was overflow incontinence, and the fæces were passed involuntarily. Cystitis developed early. An examination made eighteen days after admission gave rise to the following notes:

The patient lies on his back. Mental state perfectly clear. Body fairly nourished. Appetite fair. A bed-sore has begun to form over the sacrum on the left side. Complete incontinence of urine and fæces. The anal sphincter is quite atonic; when the finger is introduced, the muscle utterly fails to grasp it and remains patent. This applies to both the external and internal sphincter. The mucous membrane of the bowel is quite anæsthetic, the presence of the finger being entirely unperceived. When a catheter is passed into the bladder there is no resistance of the urethra to its passage, no consciousness on the part of the patient of its presence, and not even a sense of discomfort.

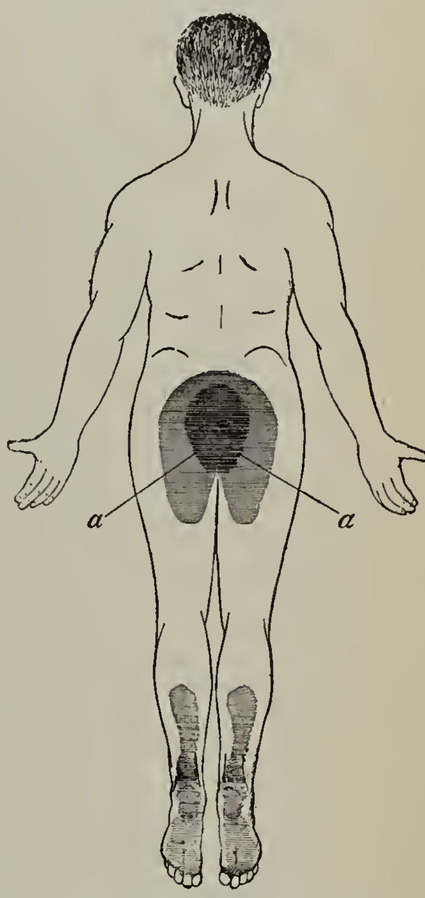

Fig. 1.—Diagram illustrating the situation of sensory loss. *aa*, area of anæsthesia and analgesia. The lightly shaded areas on the buttocks and legs represent a slighter degree of sensory loss.

The right thigh can be flexed, adducted, and abducted. The flexors and extensors of the right knee are much weakened, but retain some power, the loss being greatest in the flexors. The flexors and extensors of the toes and ankle are completely para-

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* I am indebted to Dr. Briddon for the opportunity of studying this case.

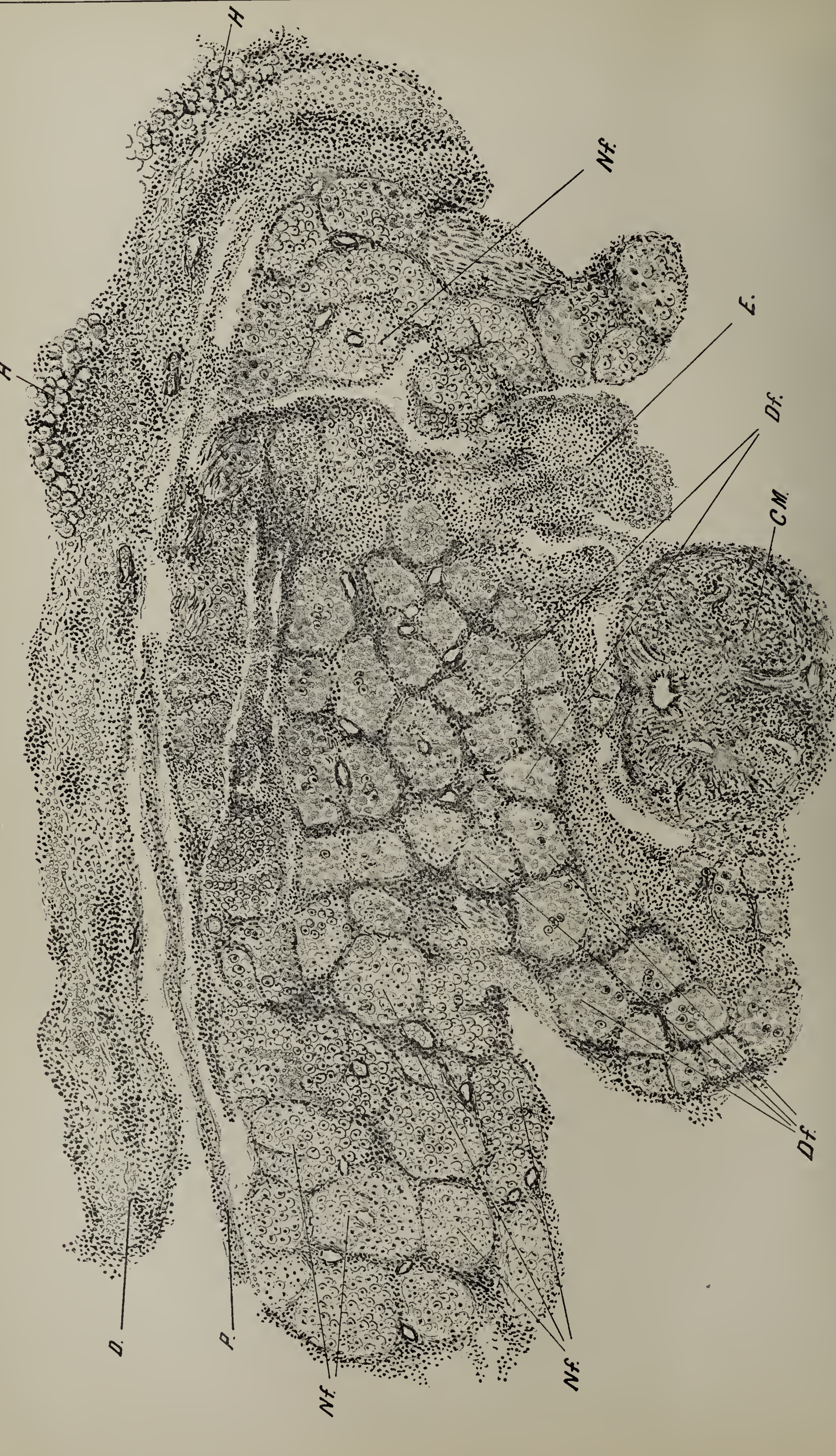

Fig. 2.—A section through the cauda equina and conus medullaris (moderately magnified, partly diagrammatic). *CM*, conus medullaris; *N f*, normal nerve fibers; *D f*, degenerated nerve fibers; *D*, dura; *E*, inflammatory exudate; *H*, hæmorrhage; *P*, pia.

lyzed. The foot lies extended by its own weight. On the left side there is slight power of flexion of the thigh. Adduction and abduction were not tested. There is complete loss of power in all the muscles below the knee, and the foot lies extended like that of the other side. Both lower extremities lie flaccid, without any tendency to rigidity.

There are sensory disturbances of peculiar distribution and character. Their distribution may be readily seen from the accompanying diagram. There are anæsthesia and analgesia of the legs and feet, the loss being more extensive on the left side. The soles and dorsal surfaces of the feet are quite anæsthetic and analgesic. Above the feet the loss of sensibility is no longer complete, but gradually grows less, until the normal sensibility is reached in the upper part of the leg and lower part of the thigh. The loss of sensibility is not perfectly symmetrical in distribution, as the diagram shows. On either side of the median furrow of the buttocks is a semi-elliptical area, more extensive on the left side, in which there is complete loss of tactile, pain, and temperature senses. Outside this, in the area indicated in the diagram, there is partial analgesia, the tactile sense being normal. Anteriorly there is a small, irregular-shaped space on either side of the pubes above and below the fold of the groin, in which there is partial loss of tactile and pain sense. Sensibility is much diminished in the skin of the penis, and distinctly lessened in the skin of the scrotum. Both pain and tactile sense are lost on the perinæum, but are normal on the contiguous thigh surfaces. The muscular sense is intact in the legs. There is no girdle pain, and has been none. The patient complains of continuous and considerable pain referred to the sacrum.

There is atrophy of both lower extremities, more marked in the leg than in the thigh, but not considerable in degree on either side. The skin of the legs is drier than normal, or than that of other parts of the body. There is entire loss of faradaic contractility in the muscles below the knee (anterior and posterior tibial groups and peronei), with diminished galvanic contractility and reversal of the polar formula.

An examination made five weeks after the admission of the patient showed an im provement in his general condition. There was at this time some improvement in power, the patient being able to flex, adduct, and abduct the thigh; but in the leg there was no distinct improvement. There was no marked improvement in the state of sensibility except in the legs, where the previously diminished sensibility was less decided and did not extend so high.

Improvement became more decided during the second month, so that after eight weeks had passed there were the following changes: Slight power of flexion of the big toe exists on the left side; sensation much improved in the legs, and considerably improved on the dorsal and sole surfaces of the feet, especially in places. The anæsthesia on the buttocks and the adjacent region is unchanged in extent. The temperature and pain senses are still lost over the elliptical areas already described, but there is a slight improvement in tactile sensibility over the entire area, including these elliptical spaces.

There is some return of sensation in the rectum; the patient has become conscious of the presence of fæces. There is no control, however, over the evacuation of fæces. The sphincter is patent as before, but the internal sphincter makes a slight tonic contraction when the finger is introduced.

There is no control whatever over the bladder. From the time of admission the patient has had a slight rise of temperature, ranging irregularly between 99° and 101°. This has now almost subsided. The cystitis, which at one time was very pronounced, has been brought under control. By the end of the third month the patient was able to walk with the aid of canes.

Five and a half months after the injury another thorough examination was made. The patient has now a paralytic walk calling to mind that of a severe case of poliomyelitis. There is almost total paralysis of the calf, peronei, and anterior tibial muscles. The anterior thigh muscles are distinctly weak. There is a decided contracture of the posterior tibial muscles. The loss of sensibility noted at the last examination is practically unaltered.

On the buttocks the original area of sensory loss is preserved, and the loss presents the same characters, with this exception, that there is some tactile sensibility in all parts of the space, while the pain and temperature sense are still entirely lost in the elliptical areas. Incontinence of urine and fæces as before. Fæces were felt at one time, but are no longer recognized. The external sphincter is still entirely relaxed, but the internal sphincter grasps the finger slightly. The atrophy of the legs is a little more pronounced than formerly. None of the muscles of the legs respond to faradism. The muscles of each leg show the degenerative reaction in different degrees of intensity, the most advanced forms occurring in the left leg. The superficial and deep reflexes are present on both sides, the knee-jerks being slightly excessive. The abdomen is red from vaso-motor paralysis. Cystitis is again troublesome. There has been entire loss of sexual power from the first. When the patient lies, there is noticeable an excessive prominence of the first lumbar spine. On pressure, considerable pain is referred to the spot. When the patient stands, the deformity is at once much exaggerated; the first lumbar spine becomes much more prominent than before, and with this change there is a marked prominence of the spines immediately above and below it. The undue prominence of the first lumbar spine was observed when the patient was admitted, but the extent of the deformity could not at that time be accurately estimated.

An enumeration of the various features of this case led to the diagnosis of a lesion of the cauda equina. The question of operation arose when it was found that the patient was making no improvement, and the case was seen by Dr. Birdsall, Dr. Starr, and Dr. Sachs, who concurred in the diagnosis, and regarded operative interference with a view to relieving pressure as justifiable. Accordingly, on January 27th, Dr. Briddon removed the spines and laminæ of the first, second, and third lumbar vertebræ—that is, of the vertebræ which gave rise to the greatest prominence. An opening was made in the dura and the cauda exposed, but no distinctly pathological condition was found. It was thought that some of the nerve-roots were abnormal in color. A probe was passed between the dura and the vertebræ immediately above and below the wound, but no evidences of bone compression were detected. After consultation with Dr. Birdsall and Dr. Sachs, it was considered unadvisable to extend the wound in an upward direction. The patient did well for twenty-four hours, with a normal temperature. Then occurred a sharp rise in temperature, accompanied with abdominal pain and tympanites and great prostration. Death occurred about forty-eight hours after the operation.

Autopsy.—The autopsy was incomplete, owing to the difficulties under which it was carried out. I am much indebted to Dr. Thacher for securing for me the parts to be described.

The specimen obtained was four inches and a half in length, and consisted of the membranes with the inclosed cauda equina and the lower end of the conus medullaris (about three quarters of an inch). Inspection of the outer surface of the dura showed nothing abnormal. On opening the dura, about half an inch above the cut made in it at the time of the operation, distinct pathological changes were found. Just to the right of the conus medullaris, and covered laterally and in front by the bundles of the cauda, was a mass of yellowish tinge and firm consistence, three quarters of an inch in vertical extent (it extended to the upper end of the specimen), from an eighth to a quarter of an inch in width, and about the same from before backward. The various bundles of the cauda are bound together at this level by inflammatory material. The dura over the upper part of the specimen is considerably and irregularly thickened, especially on the left side. In places the dura is firmly adherent to the pia, which is in turn bound down to the bundles of the cauda.

A section through the upper part of the specimen presents briefly the following appearances: The dura is thickened and infiltrated with small spheroidal cells. In places the infiltration is dense and circumscribed. This is especially the case in the vicinity of the vessels. Several large hæmorrhages are seen in the dura. The red blood-cells, which are little altered in appearance, are mixed in with a small spheroidal-celled infiltration. The inner surface of the dura is covered with a dense layer of small spheroidal cells, sharply defined from the deeper layers of the dura. The pia about the cauda is thickened and infiltrated. Between the various nerve-bundles of the cauda the prolongations of the pia are thickened—in places greatly so—and infiltrated with small spheroidal cells. In places, especially in the centrally situated portions of the cauda, there are considerable masses of exudate undergoing organization. Just to the right of the conus medullaris is such a mass, containing at one part a large number of red blood-cells. The nerve-fibers of the most centrally situated nerve-bundles are very completely and almost universally degenerated. Anteriorly, many bundles contain both normal and degenerated fibers. The laterally-placed bundles of the cauda are, for the most part, normal; but on the right side there are some that contain degenerated fibers. There is an increase in nuclei in the degenerated nerve-bundles. The conus medullaris is much altered, and at one level destroyed. No normal nerve-elements can be distinguished at the level of greatest damage. The substance of the conus is densely infiltrated with small spheroidal cells.

The third and fourth lumbar roots, anterior and posterior, which were separately examined, are normal.

The history just recited presents numerous features of interest. Of these, none merits closer attention than the relation between the various symptoms that have been recorded and the pathological findings. The initial loss of power in the legs was no doubt due to damage of the sacral roots that enter into the formation of the sacral plexus, and perhaps to the lowest lumbar roots. The third and fourth lumbar roots were histologically normal, and, though the segments from which they spring were not examined, it is reasonable to suppose that they were normal or not considerably changed, since crush in this region would have been attended with secondary degenerations in the corresponding anterior nerve roots. The knee-jerks were absent at first, and, as this reflex is dependent on the integrity of the reflex arc into which the third and fourth (probably chiefly the third) segments and nerve roots enter, it might appear at first sight that some damage to the parts in question existed and was overlooked.

We know that the knee-jerks may be abolished in consequence of very slight changes in any part of the reflex arc—even by nutritional changes—and it is highly probable that the damage which in this instance caused its loss was recovered from to such an extent that no histological traces remained. This view is borne out by the fact that the knee-jerks returned after a time, and were markedly exaggerated some time before death.

The anæsthesia of the feet and of the anterior and posterior aspects of the legs may be referred to damage to the roots which enter into the formation of the great sciatic nerve. The anæsthesia here and the loss of power in the legs were neither of them absolute, and showed some improvement in the course of time. With the remaining symptoms the case was different. The peculiarly distributed sensory loss over the buttocks, perinæum, etc., showed no appreciable change in six months' time. There was likewise no improvement in the state of the sphincters or in sexual power. These various disturbances in the distribution of the pudic, hæmorrhoidal, coccygeal, and small sciatic nerves may be referred, in part at least, to the damage to the third, fourth, and fifth sacral roots.

The persistence of the symptoms is explained by the corresponding gravity of the alterations in the lowest nerves of the cauda equina. These lowest nerves were more completely damaged than any arising from higher levels. In the region showing the microscopical appearances of the cauda these nerve-bundles occupy the middle of the section. Other observers have noted the liability to greater damage of the more mesially placed nerves of the cauda (that is, the lowest).[*]

The permanent symptoms just referred to have been mentioned as depending, at least in part, on the injury to the lowest sacral roots. But the question arises, To what extent did the damage to the conus medullaris which has been noted contribute to the production of the phenomena? And the question is one which is not easily answered, since the data for an answer are not at hand.

It may be said to be customary to regard saddle-shaped areas of anæsthesia on the buttocks, like those which occurred in one case, as due to injury of the cauda *per se* (*vide* Thorburn,[†] Starr,[‡] Mills[#]). And it is probable that a pure lesion of the cauda may give rise to such anæsthesias. When, however, we examine the evidence on which this belief is based, we can not but regard it as unsatisfactory. We know of no recorded cases which demonstrate by autopsy the dependence of such localized anæsthesias on a lesion confined to the cauda equina. It is, nevertheless, in harmony with accepted views of the formation of the nerve-roots and cord segments to suppose that anæsthesias limited to definite nerve distribution depend on lesions of nerve-roots (or peripheral nerves), and not on lesions of the cord or conus medullaris.

There is good reason to think that paralysis of the sphincters of the bladder and rectum may depend on a lesion limited to nerve-roots of the cauda. But here, again, there is no direct proof. In the case we have recorded the conus medullaris was damaged, and the paralysis of the sphincters may readily have depended on that rather than on the nerve-root lesion. The persistence of these paralytic symptoms serves to strengthen this belief somewhat. A case recorded by Oppenheim,[△] in which both the conus

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[*] *Vide* Thorburn, On Lesions of the Cauda Equina. *Brain*, 1887.

[†] *Op. cit.* [‡] *Familiar Forms of Nervous Diseases*, 1890.

[#] Lesions of the Cauda Equina. *Medical News*, March, 1890.

[△] Oppenheim, Ueber eine sich auf den Conus terminalis des Rückenmarks beschränkende traumatische Erkrankung. *Archiv f. Psych.*, xx, 1, 1888.

medullaris and the cauda suffered, presented, among other symptoms, persistent and complete paralysis of the sphincters, referable, no doubt, to the damage to the conus. It is, of course, readily conceivable that such complete and persistent sphincteric paralysis might result from a lesion confined to the cauda, but there is some reason to think that it does not actually happen. At all events, there is as yet no demonstration of its occurrence, and we are justified in suspecting that the ano-vesical center of the conus medullaris (third and fourth sacral segments) is damaged when we meet with total sphincteric paralysis of long duration.

When we come to consider the nature of the original lesion in our case, we may, with considerable certainty, regard it as a severe crush of the cauda and conus, with intrameningeal hæmorrhage. The extent of the damage is such that it could not be accounted for by the occurrence of hæmorrhage alone, and the deformity of the upper lumbar region makes it certain that there was considerable displacement of the vertebræ. The severity of the initial symptoms can in itself afford no guide to the diagnosis between crush and hæmorrhage. The presence of considerable deformity in any case makes it probable that there is a crush of the parts.

But far the most important practical question which arises in a case of this kind is that of operative interference. Before touching on this subject in its wider relations, it will be advantageous to note the considerations which appeared to justify operation in the case we have under notice.

In the first place it should be noted that the improvement in motor power which was observed early in the progress of the case had come to a standstill. In regard to conditions other than motion, improvement had been slight or wanting. For a considerable period of time before the operation the patient's condition was practically unaltered, and that condition was one of almost complete helplessness. It is true he could limp about the ward with the help of canes, but his sphincters were completely paralyzed. Being a laboring man, it was certain that the patient would never again be self-supporting unless a very considerable improvement occurred in his power of motion and unless he regained control of his sphincters. That such an improvement should occur spontaneously was in the highest degree improbable. But not only was there no reasonable prospect of improvement; there was a grave risk of complications arising from a cystitis which was kept in check only by the most scrupulous attention. On his leaving the hospital the necessary medical attention would certainly have been remitted. Were it necessary to dwell on the dangers of a neglected cystitis, I might aptly cite the case of Oppenheim already mentioned. This case is almost identical in its symptoms and pathology with the case under discussion. The chief difference between them is that in Oppenheim's case the gravity of the symptoms was, on the whole, somewhat less than in ours. This patient died, nevertheless, less than four months after the injury, from a pyelonephritis following a chronic cystitis which had presumably been neglected.

Under the circumstances, operative interference was thought to be justified. The intention was to relieve pressure upon the cauda by clot or by bone should either or both exist. It is believed that the dangers of operation were not underestimated, nor the uncertainties of diagnosis unappreciated.

The results of the operation teach us two things very clearly. They teach us, first, that the shock of an operation for removal of the laminæ of the lumbar vertebræ may be considerable even when the operation is done by a rapid and skillful operator. Secondly, they teach us the futility of operating in cases of injury to the cauda equina in which time has elapsed for the occurrence of secondary degenerations and the organization of inflammatory products. It might be said that the time to operate in such cases was immediately after the injury, and not after the lapse of months. In a certain sense this would be true. It would be true could we determine at the time of the injury its character and gravity. Unfortunately, we are at present unable to do this. Many of the cases which have been described as injuries of the cauda equina have appeared grave at first, but the patients have made excellent recoveries in the end. To subject such patients to the dangers that attend an operation would certainly be highly injudicious, and we have no certain means of excluding the possibility of spontaneous recovery or improvement. To defer operation until we can reasonably infer that there will be no spontaneous improvement is to wait until secondary degenerations of the nerve-bundles have had time to occur, for improvement may begin after many weeks have elapsed. To pursue the policy which was followed in our case—namely, that of waiting until a promising improvement has come to a standstill—is to incur the same danger.

An accurate diagnosis of the nature of the lesion of the cauda might help in establishing the indications for an operation, but we can not at present make such a diagnosis. The following conditions may be conceived to occur, singly or in combination, as traumatic lesions of the cauda: Hæmorrhage, crush, pressure from displacement of bone without crush, inflammation, and inflammatory thickening of the dura. Of these conditions, hæmorrhage, crush, and pressure from displacement without crush give rise to immediate symptoms. The absence of appreciable bony deformity in a case in which symptoms date from the time of the injury may be supposed, on *a priori* grounds, to favor the existence of hæmorrhage and to exclude crush or pressure from bone. In such a case immediate operation might be the proper course could we determine the extent of the hæmorrhage, and did we have grounds for thinking it large. A small hæmorrhage would probably be followed by spontaneous recovery. If bony deformity is present, we have no means of knowing whether the cauda is being pressed upon simply, or whether it has been crushed. In the former case it might be wise to operate; in the latter, operation could do no good; but here again we can not make the desired distinction. The conditions which may give rise to inflammation about the bundles of the cauda we do not fully understand. That a crush may be followed by extensive inflammatory exudation is shown by our case and that of Oppenheim, and it is probable that similar inflammation may follow hæmorrhage alone. The presence of such inflammation can not be positively diagnosticated, but is rendered probable by the existence of a slight, irregular elevation in temperature, beginning on the second or third day after the injury. The rise of temperature which is due to accompanying cystitis probably does not develop so early. Advanced inflammation certainly constitutes a contra-indication to operation.

It is plain from what has been said that the indications for operation in cases of injury to the cauda equina are far from being clearly established. While it can not be denied that there may occur traumatic conditions of the cauda in which operation would be justified, it must be admitted that, until we can determine from pathological grounds what these conditions are likely to be and are able to recognize them clinically, we have no justification for operation in cases of injury of the cauda equina. In cases of the type here recorded (crush, including the conus medullaris) it is certain that nothing can ever justify operation.

With the non-traumatic lesions of the cauda, especially tumor, the case as regards operation is very different. Several cases of tumor of the cauda equina have been recorded in which timely operation might have proved beneficial, and one case has been published in which an extradural cavernous angeioma was actually removed and the recovery of the patient resulted.* The better prognosis in these cases of tumor depends chiefly on the narrow limitation of the growth during its early development. But even in these cases much remains obscure in the matter of local diagnosis. For example, the long course (five inches) of certain of the bundles of the cauda makes it possible that a tumor involving one or two of them may give rise to precisely the same symptoms, no matter where it may be situated between the origin and exit of the nerves in question. Again, extraspinal growths may give rise to symptoms very similar to those that are considered diagnostic of tumor of the cauda.

It would appear that the future for operative surgery on the cauda equina is, on the whole, far from brilliant. There remains, however, much to be learned regarding the pathology and diagnosis both of traumatic and of non-traumatic conditions, and, while much of the information we may gain may prove to be of a purely scientific nature, some will doubtless have a practical bearing on prognosis and the indications for operative treatment.

Eucalyptus as a Disinfectant in Sick-rooms.—"Sir F. von Mueller, of Melbourne, has suggested the use of green eucalyptus branches in sick-rooms, a plan which he considers applicable in all infectious and contagious diseases. It is said to have proved successful with phthisical patients, not only upon antiseptic grounds, but also by reason of the sedative influence of the shrub upon the cough. The branches should be placed under the bedsteads, and be renewed when necessary every other day. In this country such an easy method of disinfecting sick-rooms would be highly appreciated. Unfortunately, however, it is not possible to obtain the necessary green eucalyptus branches, when required, with the same facility as we can provide ourselves with coals or any other commodity."—*British and Colonial Druggist.*

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* Laquer, Ueber Compression der Cauda equina. *Neurologisches Centralblatt*, April 1, 1891.

RESUSCITATION
IN SUSPENDED ANIMATION
FOLLOWING THE ADMINISTRATION OF CHLOROFORM.*

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This subject was brought to my mind by the large number of recently reported deaths from this agent, and has been selected in the belief that the methods of procedure in these emergencies are not as definite, in the minds of the majority of those who administer anæsthetics, as they should be.

Each surgeon of experience has doubtless his own idea about what should be done, but it is my conviction that an emergency as great as that which exists in impending death from chloroform calls for an effort on the part of the profession to formulate a code of action which should constitute the law of practice in all these cases. It is difficult to appreciate the lack of unanimity found in various textbooks until one has taken some pains to review the references on this subject. It is also doubtful whether a solution of the question could be reached except by submitting the various cardinal questions which arise to a commission of competent surgeons, whose report would carry the weight of authority and command the respect of the entire profession.

As an illustration of the uncertain knowledge which exists upon the subject may be cited the belief that drawing out the tongue will raise the epiglottis, and thus open the airway to the lungs. This belief exists in the minds of a large proportion of the profession, and the procedure is employed and recommended by many leading surgeons. By way of correcting the error, reference is here given to a demonstration, by Benjamin Howard, before the Royal College of Surgeons, England (*Braithwaite*, lxxiv, from the *Lancet*, October 27, 1889, page 819), the conclusions drawn from which are: First, contrary to the universal belief, traction of the tongue can not raise the epiglottis; second, by sufficient extension of the head and neck, whether by volition, instinct, reflex action, or by effort of another, whether in the healthy, in the dying, or in the dead, the epiglottis is instantly and beyond prevention made completely erect; third, by a complete extension of the head and neck, the tongue and velum, as respiratory obstructions, are removed simultaneously with the epiglottis, and without a moment's delay the entire airway may be straightened and made free throughout by the nearest person.

This demonstration was made by a most distinguished man and before the most critical and learned body of medical men of England, and should be recognized as one of the facts of anatomy.

This fact being recognized, one source of fatal delay will be avoided. The surgeon will then resort to the simple procedure of extending the head by placing the fingers of each hand under the angles of the lower jaw, which will be carried forward while extending the head. Thus the pharyngeal space will simultaneously be increased while raising the epiglottis.

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* Read before the Illinois State Medical Society at its annual meeting, held in Springfield, May 19, 20, and 21, 1891.

The next cardinal indication after extending the head is the stimulation of respiration and circulation.

Regarding the method to be pursued at this juncture there is a difference of opinion. The majority of the references on the subject indicate a preference of the Sylvester method over that of Marshall Hall. In the decision of this question it is to be borne in mind that death from chloroform may be occasioned either by the arrest of pulmonary or cardiac action. It is likewise admitted that it is seldom known in the emergency which is the primary failure, hence it would seem rational to prefer the method which had the greatest likelihood of simultaneously stimulating the action of both organs. It is believed by the author that the Sylvester method of raising the arms and thus expanding the chest through the action of the pectoral muscles is calculated to secure the admission of the greatest amount of air to the lungs; but, while this is the case, it is the conviction that the rolling method of Marshall Hall, which throws every member into motion and enables the weight of the patients as well as that of an attendant to be rendered efficient in the expulsion of the blood from the heart, combines in a superior manner the double advantage of a stimulant to the circulation at the same time that it secures the continuance of respiration. The opinion is therefore urged that when the body is in a horizontal posture, with the head extended, and the patient is threatened with suspended animation, the first thing to be done is to roll him in a vigorous manner, not to exceed once in two seconds.

Should audible respiration not follow after a few rotations of the body, the next cardinal indication urges itself upon us—viz., secure cerebral vascular dilatation in the simplest manner and in the shortest possible time. This indication is based on the fact that chloroform causes a contraction of the cerebral vessels, to overcome which there are but two practicable means—viz., the inhalation of nitrite of amyl, and the inversion of the body.

It might be urged that the guide for practice in a desperate case should be the guide in all cases. In a desperate case the absence of respiration (except that of an artificial character), and the delay which would often occur in procuring the drug, would militate against the amyl in favor of the mechanical method of inversion.

So far as my information goes, Nélaton was the first to perform the experiment of restoring functional action after the suspension of animation by inversion of the body. A number of mice were rendered comatose, and, after waiting for a time, every alternate one was taken by the tail and swung in the air, thus forcing the blood to the brain by centrifugal motion. It was observed that those not so treated died, while most of the others survived. This experiment became the basis of practice in his critical cases. In the event of failure to restore animation by artificial respiration in the horizontal posture, he resorted to suspension of the body head downward, and while in this posture practiced the Sylvester method of artificial respiration.

This method has not been extensively published, and has not been practiced to any great extent in this country, but an account given by Sims of a case of impending death in a clinic of Nélaton's, in Paris, led me to resort to a modification of the method for the first time in the following case:

On December 10, 1890, I administered chloroform to a lad fourteen years old, for the purpose of cauterizing a chronic ulcer. The boy was vigorous and healthy and took the anæsthetic kindly, and all was effected without a ripple of difficulty. While the dressing was being applied and after the chloroform had been entirely removed, he suddenly ceased to breathe.

I had seen arrest of respiration many times in my experience and that of my father, and simply proceeded to roll the patient according to the method of Marshall Hall. I rolled him for several minutes, how many I can not tell, to no effect. Still I rolled. I dared not change this for any expedient in which I had less faith, so I continued to an unknown period, while the hands became cold and the lips purple. I was filled with a painful realization that unless something radically different was done in a very few minutes, a dead boy would be on my hands. Sims's account of Nélaton's method suddenly entered my mind, and in a moment the boy's ankles were in my grasp, and a moment later his knees were flexed over my shoulders and his head and arms were dangling toward the floor.

Without stopping for classical preparation, he was subjected to a double-quick motion around the operating room, and after about three minutes my ears experienced the welcome sounds of restored respiration. At first air was heard to enter at considerable intervals, which became shorter until it was deemed safe to place the child again on the table. No sooner was this done than the breathing again became arrested, and a resort was a second time had to the suspension, which was followed very soon again by restored respiration.

Each step was taken with a springy motion by which the weight of the intestines resting upon the diaphragm would be alternately applied and removed with the tread, the effect of which would be calculated to stimulate the heart and force the blood along its channels, while the air was simultaneously changed in the lungs. Besides this, the head being in the most pendent position, the arteries of the brain were necessarily mechanically dilated and furnished with the largest amount of the best blood, in harmony with the mechanical fact that the pressure, and hence the increase of caliber, must be greatest at the most pendent part. The brain would therefore receive a disproportionately large amount of the acquired oxygen. Besides, the motion can not otherwise than transmit numerous shocks to all parts of the dangling body, thus acting as a stimulant to the nervous system.

Since my experience with this case I have had three others, which it is my conviction would have been lost but for the execution of the method above described.

The second was the case of a young woman of large size while undergoing an operation for entropium. She took the anæsthetic badly, being one of those persons who are either too much awake to permit the operation to be performed, or in constant danger of complete suspension of animation.

When I was about half through the operation, respiration was suspended and every effort to restore it was ineffectual. Though the procedure seemed indelicate, the life of the patient and disgrace of the surgeon outweighed modesty, and the suspension was resorted to earlier than in the former case. The weight of one hundred and forty pounds was a great deal to carry, but the task was continued until breathing was restored.

The third case in which this method was brought into requisition was that of a little girl seven years old. The operation was a tenotomy for strabismus. Chloroform was administered by my brother-in-law, Dr. Stocker, because the child was frightened and was too unmanageable to render cocaine available.

The anæsthetic was taken under protest with struggling, but no complication arose until after the completion of the operation. The patient was closely watched and the alarm given immediately, so that no delay occurred after the arrest of respiration, which was simultaneously with dilatation of the pupils.

Marshall Hall's method was immediately commenced, but with no success; the body seemed lifeless and no respiratory effort could be provoked. After considerable time (not noted) the ankles were grasped and the child converted into an acrobat doing the pole act, and the surgeon into a pack-horse. The effort as above described was continued for an indefinite period, during each moment of which the sounds of renewed respiration were anxiously awaited. Yet no sounds were heard, and the worst was feared. Still I trudged on until compelled by sheer exhaustion to stop. The child was placed upon the table, when it was first found that breathing was noiseless and regular, and the period of consciousness was almost reached. A great deal of relief was experienced, but at the same time chagrin at the unnecessary expenditure of force.

The fourth case was that of a physician for whom my brother, Dr. John Prince, did an operation on the testicle. The anæsthetic was given by myself, and but little was required. Toward the close of the operation no chloroform was administered and the breathing was regular.

Suddenly, as has so often been reported, breathing ceased and the lips became ashen. Rolling was at once resorted to, but failed. Death and disgrace seemed impending, and I am convinced would have followed but for the timely resort to a repetition of the above-described method.

A few turns about the room effected the restoration of function, and the patient was again placed on the table.

I do not wish to be considered unduly enthusiastic in advocating this procedure, for I well know that it has both theoretical and practical objections. Theoretically, it has occurred to my mind that the blood-pressure caused by the suspension, especially in certain enfeebled or degenerated conditions of the walls of the cerebral vessels, might result in apoplexy. Though this danger may exist, when the time for action is at hand, it seemed so insignificant in comparison with that of impending death that the choice was made without hesitation.

A practical objection which might be made is, that the weight of an individual may be too great for the strength of the surgeon or nurse to permit the body to be carried in this pendent manner and subjected to the requisite vertical motion which, it is conceived, materially aids in the stimulation of both respiration and circulation.

Should one doubt his strength in a certain case it is to be recommended that the knees be flexed over an ordinary table five feet long, and held by an assistant while the table and patient are inverted, after which the Sylvester method can be practiced as recommended by Nélaton.

As no effort has been made toward an exhaustive treatment of this subject, no consideration has been given to a variety of expedients which find no place in the recommendation of the author, but which are still advocated, such as electricity, flagellation, alternate application of heat and cold, internal and hypodermic medication, etc. They are to be regarded as adjuvants and should not be employed at the expense of valuable time until the cardinal indications have been fulfilled.

In conclusion, these may be summarized as follows:

1. Secure free admission of air by extension or suspension of the head.
2. Provoke simultaneously respiration and circulation.
3. Obtain cerebral vascular dilatation by inversion of the body, nitrite of amyl, or both.

THE QUESTION OF GENERAL MEDICAL CULTURE IN AN EXPANDING SCIENCE AND A CONTRACTING PERSONAL FIELD.

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The growth and constitution of scientific medicine are in a large measure the extraordinary development of the last half century, a period embraced in the professional experience of men who are still in active practice. This creation, so vast that Fantasy herself can hardly grasp it, and with its ultimate workings and triumphs still hidden behind the impenetrable veil of future and perhaps distant accomplishment, creates in the mind of the thoughtful observer a feeling of enthusiasm not unlike that which moved the soul of Byron to poetic raptures when he stood on Blue Friuli's mountain and gazed upon the beauty and grandeur of the far-reaching, illimitable landscape. Old ideas and forms and habits of so-called scientific life and thought, the half-lights and shadows of a time when superstitious observance and traditionary medicine struggled for supremacy, peculiarities of circumstance and environment, and the ends and aims of a purely selfish ambition, have no continuing city or abiding place under the pervading and catholic influences of recent, progressive medicine.

The true type and essence of this newly awakened science are, we may be sure, something more and better than material forces with utilitarian tendencies. Perfected strength of body means perfected strength of mind, means perfected moral energy and power; a trinity of inseparable and dependent forces which are to attain what Thomas Carlyle would call a "maximum of desirability" in the higher civilization which science is to evolve in the long course of time. We have therefore to consider, in recent medicine, the combined activities, influences, and potential powers of an intellectual and moral, as well as a physical, agent, and to bear in mind that a subject thus closely allied to all human interests, so diversely operative and inspiring, must attract the attention of educated scientists and lead, under their guidance, to new subjects for study and investigation—subjects which require, in their conversion to applied knowledge, the eager and irresistible forces of a trained intelligence.

The present growth and character of medicine are the outgrowth of work thus intelligently and progressively carried on. Its bulk has outgrown the possible compass of a single treatise. The most brilliantly endowed and acquisitive mind can not follow it. Hence its timely and inevitable divisions into distinct and separate fields of study and practice. And the student, no longer aiming at individual sovereignty and power in the great universality of medicine, is forced to labor in a restricted and restricting province. In other words, he is no longer an eccentric luminary gyrating through the visible heavens, but a steady and polar light, nearly or remotely placed, in the great geometry of his science with its countless stars and rolling systems. The best powers of his mind and the available limits of his time are given, and not always adequately given, to the constantly augmenting work and literature of his own special orbit. It can not be said that this arrangement of work is an affliction to science, for science has at no time in human history flourished as it now flourishes, or originated more sublime or useful discoveries than those recorded under the present divisions and restrictions of labor. The student, however, must be regarded as a pioneer. Living and working in a particular borderland of medicine, he is enabled to combine in natural and harmonious arrangement, observations, phenomena, laws, and deductions which to the general observer appear to be in a state of great confusion and obscurity. He is also enabled to penetrate the unexplored regions of science, and thus "blazes" the way, as it were, to future discoveries which shall profitably enlarge its domain.

But as the student's knowledge of a single province of medicine becomes profound and important, his knowledge of its other and many provinces becomes proportionately vague, fragmentary, and, to others than himself, inconsequential. It must be very apparent, however, that his ignorance of what is going on in the already explored circumjacent territory is productive of several great inconveniences. Indeed, general knowledge of the current progress in correlative branches is to the specialist in medicine what the compass is to the mariner in the darkness of the night and in the solitude of the sea. And here a material and very interesting question arises—namely, How is the student to acquire, in a growing science and a narrowing personal field, a knowledge of correlative branches which shall suitably enlarge his scientific environment? Such knowledge is certainly not to be gained from text-books. It must be plain to the most casual observation that no one has time to read and mentally assimilate, except in his own particular department of medicine, knowledge in this form. It must be presented directly, briefly, and in its naked elements. This statement does not open, of course, the question of the utility of text-books in other directions, for the growth and perpetuity of the medical sciences are dependent on the publication in book-form of particular knowledge or experience. But, as a means of keeping the individual's knowledge alive in all departments of medicine, exhaustive treatises are, I repeat, practically prohibitive. And this prohibition is unmistakably and practically asserted and demonstrated by the increasing number and circulation of journals of general medicine.

Can there be any reasonable doubt that the true higher province of general medical journalism, thus inferentially established and defined, is to recreate, epitomize, and carry on, in a continuous chain of scientific data suited to individual needs in special fields, the whole department of the medical sciences? Knowledge, thus arranged and abbreviated, is, however, nowhere that I know of, so fully or distinctly exhibited as it ought to be, and that is saying, substantially, that the recent great changes in the genius and method of medicine have not been followed by corresponding great changes in the genius and method of general medical journalism. Of course, it should be borne in mind, in this connection, that these changes, in their number, rapidity, magnitude, and importance, could not very well be adapted to an immediate and well-digested plan of record, which must be left in a great measure to the longer results of time and experience. Medical journalism must always labor under this embarrassment.

Another reason why medical journalism is not quite suited to the necessities of the time in which we live is that we are, in our desire to know more than it has been permitted us to receive, more concerned in the acquisition of knowledge than we are in its defense. There is, in particular, between the profession of medicine on the one side and the profession of medical journalism on the other, a mutual dependence and a mutual responsibility which have not been generally recognized in practice; and the two forces display, in the absence of such recognition in practice, a warring intelligence and a warring purpose.

We find ignorant and designing writers fathering, in our best journals, knowledge or experience that is already assimilated, or otherwise valueless, without knowing or caring that they are trading on the limitations of memory. Articles refused by journals devoted to the publication of original matter on the subjects offered, experience no difficulty in finding their way into the columns of reputable and influential journals. The prominence of authority in this way given to ignorant and selfish effort is always hurtful, cripples the great usefulness of medical journalism, and mystifies the general intelligence. It is folly to assume that the influence of such writings is ephemeral and harmless, for who does not know that they sometimes deceive, among the multitude of credulous and dependent readers, the keenest, most profound, and generally well-informed minds in professional life? And yet evidences of culpability in the directions indicated have ceased to excite comment, or even to arrest attention, except at rare intervals and under the most aggravating circumstances.

I am not among those who pretend to hold editorial management responsible for the existence and continuance of deleterious matter in medical journalism. The first duty of an editor is to secure a just text, and to exercise in his selection of material offered by members of the profession his best judgment as to its relevancy and value. He can not undertake, however, to guarantee the originality or value of the matter published, nor has he any right to suspect corruption in every contributor. On the contrary, it is eminently proper that he should assume that manuscript presented for publication by men engaged in the serious and exacting pursuits of a science like medicine is in some way pertinent, and that it is written for the sake of science, not for the purpose of furthering selfish ends nor for the gratification of a puerile vanity. The candid judgment will refuse, therefore, to hold editorial work and influence, which must be exerted in lines of general obedience to the professional demand, responsible for ignorance or misjudgment displayed in relation to subjects on which the writer professes to have full knowledge.

We may be sure that matter will demand and receive insertion in the right form and place when the profession of medicine and the profession of medical journalism are animated by a common intelligence and a common resolution. When that time comes—and it is coming—our journals of general medicine will be reliable records of current progress in all departments of the medical sciences, so arranged as to render it comparatively easy of access and assimilation. That is to say, individual needs in the general field of medicine will be universally recognized, and met as nearly as it is possible to meet them.

It might be well to add here, in leaving the subject for the further and more profitable consideration of better-informed minds, that the writer does not contend that the great problem of general medical culture will be solved by periodical literature, however perfect it may be, or that a periodical record of the most favorable character offers the specialist the means of a learned ease and grace in the whole department of medicine; but such a record would, it is confidently believed, place him, *in all its departments*, above the lamentably low plane and confusion of absolute ignorance.

1637 ARCH STREET.

NEURALGIA FOLLOWING FRACTURE SUCCESSFULLY TREATED BY OPERATION.*

By REGINALD H. SAYRE, M. D.

IN the autumn of 1887 Dr. C. S. Allen brought a young man to consult me on account of an obstinate neuralgia of the right thigh. The patient was nineteen years of age, and, with the exception of an attack of small-pox when ten months old, had had good health. When five years old he fell, fracturing the right femur in its upper third. He recovered from this accident with good straight union and but little shortening. At the age of nine years he fell and refractured the right femur at a point a little higher than the former injury, and also dislocated the hip joint. The dislocation was reduced and the fracture united with little shortening and no deformity. When thirteen years old he fractured the right femur for the third time, and this time the bones united at an angle, causing a very marked curving of the thigh outward and forward, and giving rise to between two and three inches of shortening. Since the time of the last accident he had had constant pain at the site of injury, which became very much increased on motion, as in walking. The pain ran down the outer side of the thigh as far as the knee, and was most intense at the point of greatest deformity, which was just in the line of the external cutaneous nerve. The pain also was much increased by my manipulation of the thigh in my endeavors to locate the cause of the trouble. Of late the pain had increased so much that the patient had begun the use of morphine to secure relief.

On manipulation of the thigh I could feel what seemed to be a ridge of bone over which a cord-like process could be slipped like a violin string, and it seemed probable that some fibers of the external cutaneous nerve or some of its branches were either pressed on by the callus or caught between the ends of the bones. Thinking, however, that the jar caused by walking with a short leg might have something to do with the pain, I advised the patient to try the effect of a high shoe on the short leg and to blister the site of pain thoroughly, and later on use strong galvanic currents down the course of the painful nerve, promising that I would operate on him if these means failed to afford relief.

In April, 1888, he returned again, saying that his pain had grown steadily worse in spite of treatment, and that he had been using morphine steadily. He was very much run down, his nervous system thoroughly demoralized, and I refused to operate on him until he had cut off his opium and rallied his shattered nerves.

On June 10, 1888, he was sufficiently improved to enable me to operate, which I did, assisted by my father, my brother, Dr. Allen, and Dr. Carlisle. All examined the case and all thought there was a large exostosis pressing on the nerve. Under antiseptic precautions I cut down on the most prominent part of the curved femur, and found to my surprise that part of the vastus externus muscle was so twisted on itself as to run at right angles to the long axis of the femur. I cut down to the bone and was surprised to find no exostosis with the exception of a most minute point which could hardly be considered abnormal, but which I nevertheless removed. I then passed my finger completely around the femur, stripping up the muscles for an extent of two or more inches, hoping to find some sharp projection to account for the pain; but, failing to find anything, sewed up the wound with a rubber drainage-tube at the lower angle of the wound, having many misgivings as to the benefit I had done the patient. On the second day I removed the drainage-tube, and on the fourteenth removed all the dressings, the wound being healed, and the patient having had no rise of temperature.

At first he complained of some soreness in the leg, but the old pain, on movement of any kind, disappeared from the time of the operation. When the soreness from the operation had ceased, in about a fortnight, the patient said that he felt well, and, on being allowed to walk about, had none of his old stiffness and neuralgia. He left for home a month after the operation and I have not seen him since, but received a letter from him dated January 29, 1891, in response to an inquiry after his health, in which he says: "The result so far is perfectly satisfactory. I have had no pain, and now I am able to walk and go all over without any trouble."

This case seemed to me to present points of sufficient interest to be recorded: 1. The apparent relation of small-pox in infantile life to the subsequent fragility of the right femur, which was broken in very nearly the same place on three separate occasions, each four years from the other and caused by slight violence. 2. The persistent neuralgia following the last fracture, and persisting for six years up to the time of operation in spite of various measures that had been tried, both by myself and by others, for its relief, and which finally became so intense as to give rise to the opium habit. 3. The absence of an exostosis at the time of operation sufficient to have given rise to the symptoms, and the fact that relief was afforded by the operation. 4. The simulation of an exostosis by what I presume was a tense fiber of the fascia lata which had become so bound down as to press on the muscles of the thigh, and, by girdling them, caused the pain.

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* Read before the Fifth District Branch of the New York State Medical Association, May 26, 1891.

I do not clearly understand how to account for the relief of pain. I do not think the point of bone I removed was large enough to have made the trouble, and I did not think when I passed my finger around the femur that I tore loose any nerve fibers from the cicatrix. I suppose the explanation is to be found in the relief of tension given by splitting up the fascia lata, which certainly bound the muscles very tightly, and I think the length of time that has elapsed since the operation—nearly three years—is sufficient guarantee that the cure will be permanent, especially as the patient was addicted to the opium habit, and these patients are proverbially hard to cure of neuralgia, as the latter offers so good an excuse for resumption of their old habits.

TWO CASES OF EXTRA-UTERINE PREGNANCY.

By WILLIAM D. HAMILTON, M. D., and
CHARLES S. HAMILTON, M. D.,
COLUMBUS, OHIO.

Case I. *Extra-uterine Pregnancy; Abdominal Section in the Twelfth Month; Removal of a Dead Fœtus; Recovery.*—Mrs. F., seen with Dr. I. N. Beach, of West Jefferson, Madison County, Ohio. She was forty-four years of age; had been married twenty-five years; had had two miscarriages and six children, the last in August, 1884. Her health was perfect in November, 1880. Amenorrhœa existed from January to August, inclusive, in 1890. She had morning sickness during the early weeks. For a fortnight or more in July she had a free discharge of water from the vagina. Her breasts filled with milk in the latter months, and dried in September. She frequently had pain in the left groin, sometimes aching, at other times darting across the abdomen, and very severe. Especially was this true during one week in August. The fœtal movements, which had been well marked, suddenly ceased after the pain subsided. Then followed a free bloody discharge for forty days. Slight hectic was present in September.

The patient was slender, swarthy, and cachectic. The tumor, which had appeared within the previous few months, was not symmetrical. It was generally fluctuant or semi-solid. The cervix was slightly enlarged and fixed high behind the symphysis. The os was moderately open. The expanded *cul-de-sac* apparently contained fluid.

Diagnosis.—Multilocular cyst (?) or extra-uterine pregnancy.

Operation, November 11, 1890 (in the presence of a hundred students and physicians).—An incision, four inches and a half long, exposed a tumor which, when perforated, yielded a small amount of serum. A finger introduced through the opening in the sac felt a leg, upon which traction was used in extracting a macerated fœtus weighing nine pounds and a half. The child had hydrocephalus and spina bifida. The placenta, slightly to the left of the incision, was not disturbed. The cord was tied and cut, and the stump of it was left protruding. Hæmorrhage was slight. The sac varied in thickness from a half to three quarters of an inch. Very little fluid escaped into the peritoneal cavity. Silk-worm gut was used for parietal closure at the upper end, and silk stitches for uniting the sac to the lower two thirds of the external incision. Free washing of both general and special cavities was employed. Drainage-tubes were inserted at the lower angle and near the cord. Little or no shock followed.

The after-treatment consisted of rectal feeding with peptonized beef extract, white of egg, and wine for three days. The sac was washed out every four hours, alternately with boric-acid and iodine water. The bowels acted in response to salts on the third day. Placental *débris* came away with every washing. No abdominal distention was present, except that due to the presence of the placenta.

December 1st.—The wound was discharging slightly and was smaller.

4th (twenty-third day after operation).—The patient was presented before the Central Ohio Medical Society.

7th.—She left the hospital, well.

Comments.—Why this obscurity in diagnosis?

1. A large macerated hydrocephalus may feel, through the *cul-de-sac*, like any other collection of fluid, so that the head may be difficult to recognize as such.

2. The woman thought she was pregnant. A patient who has borne children can give more reliable information about changes in her breasts and the kick of a fœtus than one who has had no such experience.

3. Spurious labor with the death of the fœtus explains the final cessation of pain in August.

4. This case probably belongs to the intraligamentous type of tubal pregnancy.

Case II. *Tubal Pregnancy; Rupture; Patient in Collapse Twenty-four Hours afterward; Abdominal Section by Dr. Charles S. Hamilton; Recovery.*—Mrs. J. J., of Columbus, Ohio, was admitted to Mt. Carmel Hospital, at 3 p. m., February 7, 1891. She was first seen by the writer at her home at 2 p. m. on the same day. She was thirty years old; had been married ten years, and had conceived four times prior to this illness. The last and only birth at term was in 1885. She had had leucorrhœa for seven years, with considerable abdominal tenderness at times. The breasts had been somewhat enlarged and tender for the last few weeks. She had had some nausea and frequent vomiting. On December 20, 1890, shreds were discharged from the vagina, and on the next day there was a gush of blood, with pain in the back.

On February 5th (her menstruation being absent) there was an intermittent, pink, watery, vaginal discharge for twenty-four hours. She was pale, anxious, and pinched, and had cold extremities. The pulse was 136 and thready. Her lips were blanched and her face and ears were cold. She complained of severe pain in the left hip and left breast, which had begun at eight o'clock on the preceding evening, February 6th.

It was sharp, continuous, severe, so that, as she stated, she "could not straighten out." The lower abdomen was prominent, tender, and dull on percussion. The os was slightly patulous, the cervix was fixed and normal in position. The fundus was not discernible, and "Douglas's pouch" was tender.

Diagnosis.—Ruptured tubal gestation sac.

Abdominal section was done by my colleague, Dr. Charles S. Hamilton, in the presence of Dr. N. R. Coleman and Dr. Edwin F. Wilson. Although the patient was filthy, we thought it unsafe to do more by way of preparation than to wash the abdominal walls and vagina before etherization. Her pupils were dilated, and the pulse was so feeble as to be hardly appreciable. Her deadly pallor and her bloodless abdominal walls reminded us of an autopsy. The amount of tarry blood and clots washed out was estimated at one gallon. The diagnosis was promptly confirmed, and the ruptured tube, as large as a hen's egg, was tied and cut. The pulse improved under the hot-water washing. A drain and stitches finished the procedure. She had no abdominal symptoms of importance. She was discharged March 13th. Her convalescence was retarded by a burn on the foot from the application of a hot bottle during anæsthesia.

The writer has published four cases of extra-uterine pregnancy in the *New York Medical Journal.* In the three cases in which abdominal section was permitted the patients recovered. The five women operated upon are all alive and well to-day.

GALL BLADDER CONTAINING FORTY STONES.

RUPTURE; DEATH.

By GEORGE W. WAGONER, M. D.,
JOHNSTOWN, PA.

The following case is of more than passing interest because of the obscure symptoms preceding death and of the remarkable conditions found at the autopsy:

Mrs. F., aged about sixty-six years, was a tall, well-preserved, vigorous, and active woman. She was the mother of ten children, and as the wife of a minister her life-work was exacting and laborious. She was at all times equal to her duties, except for an occasional attack of what she termed sick headache. During the last few years these attacks had become more frequent and were always accompanied by vomiting, purging, and violent abdominal pain. She nearly always relied upon her home remedies for the relief of her suffering. She would endure a very great amount of torture before consenting to have a physician. On the 4th of July she had a somewhat severe attack, which yielded after several days to ordinary remedies. On Thursday, the 16th of July, she spent most of the forenoon working in her flower garden, and by noon was very hungry and tired. She ate a hearty dinner of corn-bread and a variety of vegetables—more, indeed, than was usual for her. During the afternoon she felt the premonitory symptoms of an attack, which by evening had developed into one of the most severe she ever had. She vomited persistently, was purged, and had severe colicky pains. Notwithstanding the violence of the attack, she endeavored to secure relief from her domestic remedies until 10 P. M. of the 17th, when I was summoned to see her. I found her in such agony that she could not remain in one position longer than a minute at a time. She tossed over the bed, assuming all kinds of postures, walked about the room, sat, lay, and rolled on the floor in her hopeless efforts to find relief. The straining to vomit was distressing to witness. Everything she took into her stomach was at once rejected, and the retching would continue until nothing but frothy mucus was returned. The matter vomited did not contain bile, but was a clear, frothy, ropy mucus, which clung to the pharynx and excited a spasmodic cough for its removal. The action of the heart was slow and somewhat weak; the surface of the body was pale, cold, and clammy; the mind was clear, and her only desire was for relief from the deathly sickness at the stomach. This latter symptom, to her mind, overshadowed all the others, and caused her the most acute anguish. The abdomen was not distended, and there was no point at which unusual tenderness could be detected. The first indication was to relieve the horrible distress, and to this end a hypodermic injection containing half a grain of sulphate of morphine and a seventy-fifth of a grain of atropine was administered, the patient was put to bed, a hot-water bag applied to the stomach, and all the ordinary means were used to make her comfortable. After half an hour she was still restless, and the hypodermic injection was repeated with half the quantities of the drugs. This relieved the distress somewhat, and in half an hour she sank into a sleep, from which she was aroused quite frequently by the efforts at vomiting. It was observed that this quantity of morphine, while it did not completely subdue the distress, yet affected the breathing in a very annoying manner. When the patient would sink into a doze for a few minutes the breathing became shallow, and in a very short time would stop entirely for half a minute and then she would start up and almost spring from the bed, gasping for breath. Respiration would then be very deep and hurried for a few minutes, during which she would strain to vomit; then the dozing would come on only to be followed by the suppression of breathing. This vicious circle of symptoms was continued during the night and until the following morning, by which time the effects of the morphine had worn off and the respiration became somewhat more regular. But then the dreadful nausea returned, and the restlessness in all its original fury. A solution containing an eighth of a grain of cocaine to the teaspoonful was ordered to be given every half-hour, in the hope that it would have a sedative action upon the stomach; but, after three grains of the cocaine had been given without producing any effect, it was discontinued and one containing eight grains each of subnitrate of bismuth and oxalate of cerium to the teaspoonful was substituted. The latter mixture was given every hour, and in four hours the efforts at vomiting were stopped, although the intense and prostrating sickness of the stomach was still present. The mixture was then given every two hours.

On Saturday, the 18th, the symptoms were essentially the same as on the preceding day, except that the efforts at vomiting were somewhat controlled by night. The bowels had moved, but, unfortunately, the stool was disposed of before it could be examined. Urine was passed normally, the skin and conjunctiva were of normal color, the bowels were not distended or painful upon pressure, the temperature was slightly below normal, and the pulse was slow, weak, and thready. The patient's mind was clear, but depressed by a feeling of impending death. The question of diagnosis was a somewhat puzzling one. True, the passage of a gall-stone at once suggested itself, but the symptoms of this disease are so varied and indefinite that Trousseau well declares that "the only really sure element of diagnosis which we possess is the presence of biliary concretions in the stools." The same symptoms that were developed in this case might also be caused by an obstruction in the small intestine near the stomach, by a twist or displacement of the small intestine, by an internal hernia, by bands of adhesion from lymph—in fact, from a variety of causes the symptoms of which are all so closely allied that we are compelled to be satisfied with a guess in differentiating between them. However, the treatment in all of them is essentially the same, and alike unsatisfactory. The predominating feature of this case was the profound and continuous prostration of the vital forces without a single characteristic symptom of biliary concretion. The peculiar features of the case were made known to the friends in all their bearings, and the possibility of the cause being the passage of gall-stones or a twist in the small intestine due to the violent efforts at vomiting during the early hours of the sickness, was advanced as the most reasonable explanation.

Morphine was given in half-grain doses, hypodermically, at irregular intervals, but never shorter than eight hours, from the 18th to the 21st, but after each dose the breathing became irregular. On the morning of the 19th a rectal injection of hot water was administered, bringing away two small stools, which were of normal color. At noon the patient sank into a collapse which threatened speedy death. She became pulseless, cold, livid, and unconscious. She had shallow breathing, glassy eyes, and pinched features. But with stimulating frictions and external heat she revived. On this day a slight icteroid condition of the conjunctiva was first noticed, but it did not increase or spread to the skin during her remaining days of life. It was observed that after the collapse of this day the breathing never regained its regularity even when the morphine was not administered. On the 21st, the urine not having been passed for thirty-six hours, it was drawn off. Only four ounces of coffee-colored urine was obtained.

Dr. W. B. Lowman and Dr. A. N. Wakefield were called in consultation. After carefully going over the history of the case and examining the patient, they agreed as to the indefinite character of the symptoms, the probability of the passage of gall-stones, and the certainty of a fatal issue of the case. The question of an exploratory incision was discussed, but it was not deemed justifiable in view of the extreme danger of administering chloroform or any anæsthetic when the respiratory center was so profoundly depressed. Half-grain doses of codeine by the mouth were substituted for the morphine. Small doses of calomel and sodium bicarbonate were advised, in the hope of exciting a bilious stool, and also injections of water through a rectal tube for the same purpose. Neither of these means had any effect whatever. The water could not be passed beyond the sigmoid flexure by any reasonable force. About an hour after one of the injections there was a discharge from the bowels of watery fluid containing a little black, tarry mucus, having a cadaveric odor. On the 22d the patient was unconscious and very restless. About noon of the 23d she became quiet, the coma deepened, and at 3.30 P. M. she died.

At no time during her illness were the bowels distended or painful upon palpation; there was no marked abdominal tumor, but only an indefinite sense of resistance in the right hypochondrium upon deep pressure; there was no jaundice, except as noted of the eyes; there were no intervals in which she was free from the overpowering sickness of the stomach; this latter symptom prevented the successful administration of any nourishment, and there was not an hour during which the case took on a hopeful aspect.

The friends readily consented to an autopsy, which was made two hours after death, when the following conditions were found:

Upon opening the abdominal cavity it was found to contain a large quantity of clear bile. About a pint of the fluid was sponged out. It was of a deep yellow color and somewhat viscid. The adipose tissue of the abdominal walls and all the structures within the cavity were stained a deep lemon-color. The peritonæum was not adherent to the bowels, nor were the latter adherent to each other. There were large flakes of soft lymph over about two feet of the small bowel near the cæcum. The bowels were not distended with gas, but were intensely congested throughout. About one third of the mass of intestines was of a deep purple color and so soft that they could be pulled to pieces with the fingers. At two places in the small intestine it suddenly diminished to half the normal size, and continued so for eighteen inches at one point and six inches at the other, when the normal size was recovered. The intestinal tract contained a small quantity of fluid matter, and was free from twists or obstructions. The gall bladder was elongated to six inches in length, with a circumference of six inches at the largest cross-section, from which it tapered to a blunt point at the free extremity. With the cystic duct also enlarged, the organ looked very much like a long, thick link of sausage attached to the liver. At the free end of the bladder and close to the liver a small opening was discovered; the entire end was almost black in color and very soft. About two inches from the bladder, in the common bile duct, was the first of a line of five gall stones, firmly impacted. The stones were each as large as a medium-sized grape and occupied about three inches of the duct. It required some little force to dislodge them after the duct was opened. The gall bladder contained about three ounces of very thick, greenish pus and thirty-five gall stones of various sizes, none smaller than a beech-nut and the largest of about the size of a grape. The stones were all irregularly cuboidal in shape, having smooth, pearly-white facets, sharp angles, and rough edges. None had been discharged into the abdominal cavity. The stomach contained a little blackish mucus, and its walls were deeply congested. Along the greater curvature the mucous membrane was of a deep purple color. The delicate blood-vessels in the membrane lining the stomach were ruptured. They could be easily traced by the lines of extravasated blood which formed a close and delicate network throughout its entire extent. The color of the liver was almost black, but it was not enlarged. The bladder was empty. Out of deference to the wishes of the family, the examination was not continued after discovering the immediate cause of death.

It seems reasonable to conclude, from the history of the case and the revelations of the autopsy, that the stooping and straining work in the flower garden on the 16th dislodged a gall stone and started it on its journey through the duct. This caused the acute symptoms of cholera morbus, and the vomiting, which was so violent in character that the stones in the gall bladder soon became disarranged. The constant pressure and grinding of the rough edges of these stones into the walls of the bladder soon caused inflammation, softening, and rupture. The rupture probably occurred on the 19th, when the patient passed into a collapsed condition, from which it was impossible to arouse her. The early escape of the bile into the abdominal cavity and the subsequent draining of the bile secreted, through the opening in the gall bladder, into the cavity, may account for the absence of jaundice, and also for the absence of the characteristic pain of bilious colic, which is due to the spasmodic contractions of the gall bladder and ducts. The rupture must have been a sudden one, as there were no inflammatory adhesions to the gall bladder. While the remedies used in this case did not bring the measure of relief which ought to be hoped for, yet it is gratifying to know that they did not hasten the inevitably fatal result.

Sulphonal in the Night-sweats of Phthisis.—"Dr. Erede, of Genoa, calls attention to what he calls 'the marked antidiaphoretic action of sulphonal.' He says that if given in the early hours of the evening it almost invariably succeeds in suppressing or greatly diminishing the night-sweats of phthisis. A dose of half a gramme, given in the form of pastille or suspended in some gummy vehicle, general suffices. The largest amount given was one gramme; this failed of its effect only in a very few cases in which the disease was extremely advanced. As no untoward effects were ever noticed, even in very debilitated patients, Erede thinks that with proper precautions the drug might be pushed up to 2 grammes, the usual hypnotic dose. In many cases he observed that in discontinuing the sulphonal after a time the sweating did not begin again at once, but only after some days, when it was immediately checked by repeating the medicine. This shows that the organism does not readily adapt itself to the prolonged use of the drug, as it does, for instance, to certain narcotics. Erede is inclined to think that the effect of sulphonal in checking diaphoresis is to be explained by its action on the nervous system."—*British and Colonial Druggist.*

A CASE OF
SUPRAPUBIC CYSTOTOMY FOR CALCULI.*

By D. W. HOUSTON, M. D.,
TROY, N. Y.

"SUPRAPUBIC cysto-lithotomy, condemned by Franco, its inventor, and urged by Rousset, who never performed it, lingered for a century and a half, when it was suggested by James and put into practice by John Douglas; performed for a time by Cheselden, and modified by Frère Côme and others, again abandoned, then revived by the Souberbielles and by Amussat, was finally, on account of the mortality it occasioned, very exceptionally performed until these late years, when it was reinstated with improvements that now render it comparatively safe."

With this prefatory sentence, illustrative of the history of suprapubic work, from the pen of the distinguished, ingenious, and dexterous Dr. Gouley, of New York city, I shall read for your consideration and criticism my report of a successful suprapubic section, and shall present the subject of the operation for your examination and inspection.

On February 15, 1891, Dr. Lamb, of Hoosick Falls, wrote me to name a day upon which I could examine a patient under his care, supposed to be suffering from stone in the bladder. In response to Dr. Lamb, I named February 17th, and on that day met for the first time, at his house in Hoosick Falls, James McF., aged fifty-four, American, liquor merchant by occupation.

In reply to my questions the following history was gathered from him: A gonorrhœa some years ago, no syphilis, no renal trouble, habits fairly temperate. He was always in excellent health up to three years ago, when symptoms referable to the bladder became manifest; pain in the penis, extending along the line of the urethra, frequency of micturition, and a change in the appearance of his urine. All these symptoms gave considerable uneasiness, but were seemingly insufficient to force the patient to discontinue his work or look for any treatment.

About two years ago, or one year after the bladder began to fail in a proper performance of its function, some very small calculi were voided *per urethram.* After this the act of urination was painful, imperfect, tantalizing, and unsatisfactory. A sudden stoppage of the flow of urine, accompanied by intense pain in the region of the bladder, was frequent. At such times the services of a catheter were brought into employment, producing little relief, and usually augmenting his misery, as the bladder while in a state of spasm resisted not only the exit of any of its contents, but powerfully and obstinately strove against the introduction into its cavity *per urethram* of any instrument calculated to give relief. Sharp hæmorrhage invariably followed any attempt at emptying the bladder instrumentally. Morphine gave the greatest relief and was freely used.

One year ago, or two years after the onset of his trouble, he visited New York, upon the instruction of his medical attendant, for surgical advice. His bladder was there sounded, after an anæsthetic had been administered, but no calculus was detected; however, an exploratory operation was advised for the alleviation of his cystitis.

Mr. McF. soon after returned home on account of illness in his family, constantly becoming more miserable and discouraged. In January of this year he entered the Albany City Hospital. All preparations, after an examination by my friend Dr. Vander Veer, were made for an operation. Dr. Vander Veer became ill at the time fixed for the operation, and the patient decided not to remain any longer in the institution.

Upon my visit I found a tall, powerfully built man, evidently considerably emaciated. Suffering had made a marked impression upon him.

To this his face, his speech, and his actions afforded abundant testimony. He dreaded even the thoughts of another "searching," but unflinchingly made ready at my request, after I had listened to his history. For him to assume the reclining position on a sofa required some minutes, and for him to reach the position of lying on the flat of the back assistance was necessary. Thompson's searcher I was not able to introduce into the bladder, but with a long curved sound this organ was readily entered. Upon entering the bladder with the sound I did not at once begin turning the instrument, but held it steady for at least one minute, until the pain caused by its introduction had passed away; then I advanced the sound till its point had reached the full depth of the bladder, turned the instrument quickly to the left side, and began to withdraw it, and immediately detected the characteristic "click" of a calculus. His urine was very ammoniacal and contained considerable pus.

A rectal examination revealed appreciable enlargement of the prostate gland. I advised an immediate operation, and recommended, until it had been performed, daily washings of the bladder to be followed by the injection of two teaspoonfuls of the following mixture:

Iodoform.............. .... ʒ ij;
Glycerin, }
Mucilage, } ....āā ℥ ss.;
Water.................. ....ad ℥ viij. M.

This line of treatment was faithfully carried out by Dr. Lamb to the partial relief of the patient. The condition of the urine was improved, the bladder became more tolerant of its contents, as evidenced by less discomfort in urinating, a diminution in the number of spasms, and an ability to control the desire for micturating for a period of three hours in contrast to the peremptory calls preceding this treatment of at least every hour. This encouraged the sufferer to a more hopeful view of life, and he named March 5th as the day upon which he would be willing and ready to submit to an operation.

Dr. Lamb made complete and excellent arrangements in regard to the operating room, and had full charge of the anæsthetic. I was ably assisted by my friend Dr. Harvie, of this city, and Dr. Putnam, Dr. Fox, and Dr. Joslin, of Hoosick Falls. The patient's rectum had been emptied in the early morning (the operation was begun about twelve M.) by an enema, and before being brought to the operating table the pubic region was thoroughly shaved, and the abdominal and pubic surfaces made clean by a bath of bichloride-of-mercury solution (1 to 2,000).

After the introduction of the hollow sound into the bladder, the next step in the operation was to thoroughly wash that organ with a solution of boro-salicylic acid, after which the precaution was taken not to remove the sound. After the rubber bag had been introduced into the rectum, fourteen ounces of warm water were injected into it and the stop-cock turned. Then eight ounces of the boro-salicylic solution were gently squeezed through the hollow sound into the bladder by means of a Davidson syringe. The rounded form of the bladder could then be well felt above the pubes. The hollow sound was now slowly removed and the penis encircled by a piece of soft tape, which was tied tight enough to prevent any outflow of water and sufficiently loose not to produce any injury to the urethra, or to interfere with the circulation in the penis.

At this period of the proceedings a troublesome pre-existing hernia of the right side made its appearance, and, as the patient was annoyed with a sharp cough and rigid abdomen, continuing during the early stage of the operation, it became necessary to have an assistant apply a hand over the ring to properly retain the bowel within the abdominal cavity, thus embarrassing and complicating my work very materially.

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* Read at the seventh annual meeting of the Second District Branch of the New York State Medical Association, held at Troy, N. Y., Thursday, June 25, 1891.

The field of operation was again freely washed with the bichloride solution and finally with ether, after which I began an incision in the median line three inches above the symphysis, and dissected directly to the bladder, making each succeeding incision reach well down to the pubic bone. The anterior wall of the bladder soon came nicely into view after the layer of prevesical fat had been elevated. Sutures were then passed through the bladder wall—one on each side—and given to my assistant. Between these sutures, held taut, I incised the bladder to the extent of three quarters of an inch, and, as the water flowed away, quickly introduced the index finger of my left hand into the bladder and determined the presence of two calculi. The opening into the bladder not being large enough for the delivery of the larger of the two calculi, it was enlarged downward and the bladder soon emptied. The combined weight of the calculi, which were phosphatic, was two hundred grains, the smaller weighing twenty grains. Free hæmorrhage from the bladder wall immediately began, which was not reduced by the removal of the rectal bag, but was subsequently controlled by deep sutures, intravesical pressure, and hot boro-salicylic solution. The end of a rubber drain six inches in length was now dropped into the bladder and retained there by means of a suture connecting it with one edge of the abdominal wound. By means of a glass pipe a long piece of drainage tubing was attached to the portion already fixed in the bladder and its distal end dropped into a vessel containing carbolic acid in solution. The lips of the incision were now coapted by means of several deep and superficial sutures and an abundant antiseptic dressing applied. The patient was put to bed and a free siphonage of urine was promptly established.

There was neither pain nor discomfort produced by the drainage-tube during the five days it remained in the bladder, and after its removal the free use and frequent changing of absorbent cotton answered admirably to keep the patient dry, clean, and comfortable. Free irrigations through the urethra were practiced twice daily.

The pains and spasms which had been so tormenting for months ceased directly after the operation. The patient improved very rapidly and was out of bed on the twelfth day after the calculi were removed. Urine began to be passed through the urethra during the early part of the third week. The wound granulated nicely and began to close steadily from the outset, but more rapidly after Mr. McF. commenced moving around on his feet. The patient has gained steadily in weight since the operation, the increase being over thirty pounds. On account of the severity and long continuance of the cystitis I have purposely continued suprapubic drainage by means of the admirable little apparatus designed by Dr. L. Bolton Bangs, but, as the cystitis has about disappeared, I hope soon to dispense with the drain.

Hypnotism Extraordinary.—"A curious case, according to a daily paper, has been disposed of in the Glatz Criminal Court in Germany. A chemical engineer named Sandmann, of the Munsterberg Sugar Refinery, has been fined 450 marks for causing bodily harm to a girl named Emily Winter by hypnotizing her for a whole week. Sandmann hypnotized the girl daily, sometimes even three times a day, until at last she became violently mad, and in her paroxysms tore the flesh from her fingers. She is now an inmate of a mad-house."—*British and Colonial Druggist.*

PEDICLED PAPILLOMATA OF THE SOFT PALATE, UVULA, AND PILLARS OF THE FAUCES.

By JOHN DUNN, M. D.,
RICHMOND, VA.

The following case, with remarks upon it, is presented because it is of more or less interest to examiners for life insurance.

In the autumn of 1890, Mr. F., aged twenty-four, came to see if anything could be done for an obstinate cough which could not be relieved by the use of internal medicines and the usual applications to the throat. His general health was good, but his cough, which worried him no little in the day-time, became especially annoying when he went to bed. Examination showed the nose and naso-pharynx to be normal; the mucous membrane of the pharynx and soft palate was actively hyperæmic; a small papilloma was seen to be growing from behind the uvula; apparently the growth was sessile and had its origin on the posterior aspect of the tip of the uvula. While I was getting the palate retractor ready the patient closed his mouth. When he opened it again the papilloma was no longer visible. The patient swallowed and the growth reappeared, but, instead of being at the tip of the uvula, it was seen where the uvula and posterior pillar meet, this time apparently growing from behind the soft palate.

As the mucus accumulated on the soft palate the growth was seen to slip down the edge of the uvula and assume its former place at the tip, at each position being apparently sessile and attached to the edge of the uvula. On grasping the small growth with a forceps, it was found to have a long pedicle and to be attached behind the uvula near its junction with the soft palate. Here, then, was the explanation of the obstinacy of the cough. This small growth tickled the base of the tongue when the patient was standing or sitting, whenever it slipped down so as to hang from behind the tip of the uvula; when the patient was lying down it either fell into the side of the fauces or fell back against the pharynx behind the palate. The growth, including the pedicle, was twelve millimetres long, the pedicle being eight millimetres long and one to two millimetres in diameter; the body of the growth was somewhat egg-shaped, its long diameter being four millimetres, its short diameters about three millimetres. In appearance the growth resembled a miniature club whose large end was unduly large and studded with small knotty protrusions. Down the center of the pedicle ran two or three disproportionately large blood-vessels, the rest of the pedicle being of a translucent, almost jelly-like appearance. The papillæ covering the body of the growth were from half a millimetre to a millimetre long. The removal of the papilloma entirely relieved the cough. In the spring of 1891 Mr. F. applied for a small policy in one of the large life insurance companies and his application was rejected, because he had once had in his throat this growth, a "small pedicled papilloma."

These pedicled papillomata of the soft palate occur, I am inclined to believe, with comparative frequency, as I have had occasion to remove five within the past few months. The cause of the occurrence of this form of growth on the soft palate it is not easy to assign definitely. I have never seen these pedicled papillomata growing from other parts of the throat except the uvula, soft palate, and pillars of the fauces. It is not improbable that the more or less continuous movement of these parts is a factor in the determination of the pedicle. In all five cases there was active hyperæmia of the mucous membrane of the pharynx, including the soft palate. In all the cases, except the one mentioned above, there were additional pathological conditions of the nose or pharynx; and it may be that these papillomata owe their origin to a slight rupture either of the epithelial layers of the mucous membrane, or of a small blood-vessel into these layers, the rupture occurring in a congested membrane and being caused by the repeated endeavors to clear the throat, and the continuous movements of the parts preventing a normal process of healing. One of the cases was interesting as showing to what extent the pedicle may develop while the tendency to a hypertrophic process in the papillæ is kept in abeyance. This occurred in a girl, aged sixteen, who, from insufficient protection to her chest and throat, had suffered for three or four months with a pharyngo-laryngitis. In this case the growth, whose origin was behind the soft palate, had attained the length of eight millimetres, while its diameter nowhere exceeded a quarter to half a millimetre. In none of the cases did the growth take its origin from the front of the soft palate; three grew from behind the soft palate, while two had their origin from the front of the posterior pillar in the tonsillar space. This seems to point to some constituent of the secretions of the nasal mucous membrane or of the tonsillar crypts as an additional factor in the determination of the growth of the papillomata. All the patients from whom these growths were removed were healthy, none showing any evidence of scrofulous taint. This is mentioned by way of parenthesis, since it has been thought that scrofulous nose troubles predispose to papillomata of the nasal cavity, a supposition which there would seem to be more reasons against than for. These papillomata of the soft palate all occurred in young people under thirty. All of the pedicled papillomata were small; the greatest diameter of any of them did not exceed four millimetres. The pedicles varied in length from two to eight millimetres. The pedicles were largest at their point of origin, their diameters varying from a quarter to two millimetres. Whether pedicled papillomata of the soft palate attain a larger size than these did I do not know. It would be interesting to know what becomes of these little growths if left to themselves, and whether there is any tendency for them to drop off, having attained a certain degree of organization. It is probable. In regard to their nature, they are benign, and lead to no more serious consequences than those which follow the coughing brought on by their presence in the throat. As to treatment, they should be grasped with a forceps and cut off close to the mucous surface from which they spring, and after twenty-four to forty-eight hours it will be impossible to tell to what point they were attached.

THE VALUE OF THE OBLIQUE INCISION IN THE OPERATION FOR LUMBAR COLOTOMY.

By WILLIAM BODENHAMER, M. D., LL. D.

There is at present a considerable discussion in progress relative to the question, Which is the more preferable or the more available method of colotomy, the iliac or the lumbar? Able and distinguished men are found on both sides of this question.

It is not the intention of the writer, however, on this occasion to enter into the discussion of the above question, but briefly to call attention to the oblique incision in lumbar colotomy, which is an important feature of it.

Mr. Bryant, surgeon to Guy's Hospital, London, takes the lead in favor of lumbar colotomy in a very able argument, as presented in his excellent paper on comparing the value of the lumbar or extraperitoneal with the iliac or intraperitoneal method. Mr. Bryant has performed lumbar colotomy successfully in numerous instances, and always employs the oblique incision instead of the transverse incision of Amussat. (*Colotomy, Lumbar and Iliac, with Special Reference to the Choice of Operation.* In Wood's *Medical and Surgical Monographs* for July, 1890, p. 201.)

The uniform success attending Mr. Bryant's lumbar-colotomy operations is doubtless to some extent owing to his always employing the oblique incision, and much of his success, too, is doubtless owing to his early and timely recourse to the operation, never considering it as a *dernier ressort*, as it is too often so considered. These operations of his were, however, chiefly performed for the relief of adult patients suffering from organic ulceration of the rectum, from malignant stricture of the rectum, and from obstruction of the rectum by cancerous and other diseases.

Mr. Allingham, when speaking of lumbar colotomy, says: "On the whole, I prefer the oblique incision, as recommended by Mr. Bryant." (*Diseases of the Rectum*, p. 303, 8vo, London, 1882.)

Mr. Curling says: "Mr. Bryant performs the operation of lumbar colotomy by an oblique incision, which he prefers, as giving more room for manipulation when the colon is empty, and as taking the line of the nerves and the vessels, and so lessening the risk of their division." (*Observations on the Diseases of the Rectum*, p. 181, 8vo, London, 1876.)

Professor Van Buren says: "In lumbar colotomy Bryant prefers an oblique incision in the line of the vessels and nerves, as affording more room for manipulation and tending to the prevention of prolapse." (*Lectures on Diseases of the Rectum*, p. 308, 8vo, New York, 1881.)

Mr. Ball says: "The vertical incision of Callisen and the transverse incision of Amussat have generally given place to the oblique incision as recommended by Mr. Bryant." (*The Rectum and Anus: their Diseases and Treatment*, p. 354, 12mo, Dublin, 1887.)

The writer must here be pardoned for making a brief digression, in favor of the claims of the late able and distinguished M. Amussat, to the highly important improvement he made in Callisen's operation for lumbar colotomy. This able surgeon, in his series of masterly papers on this subject, read before the Royal Academy of Medicine of Paris, investigates most critically, in highly chaste and beautiful language, the different methods heretofore existing of forming an artificial anus, gives their history, points out their numerous defects, endeavors to establish fixed rules of practice founded upon accurate anatomical investigations instead of the vague and uncertain ones existing, and endeavors to substitute improved methods of operating, etc. M. Amussat was, therefore, the first surgeon who had the courage and the ingenuity to revive, to modify, and to execute Callisen's operation of opening the left lumbar colon without wounding the peritonæum. If he has no claims to originality of conception in doing this, he certainly can claim the whole merit of reviving, improving, and reintroducing an operation which was universally condemned and consigned to oblivion in consequence of the unavoidable and insurmountable difficulties and dangers which were then believed necessarily to attend it in all cases.

The first step M. Amussat took to improve Callisen's operation was to employ the transverse incision instead of the vertical incision of the integuments and muscles, the advantages of which, he maintains, are: 1, That it makes the operation easier and more certain, and avoids the danger of dividing the lumbar vessels and nerves; 2, that it greatly facilitates the discovery of that portion of the intestine destitute of peritonæum as well as the opening of it without wounding the peritonæum; and 3, that it enables the artificial anus to be established more anteriorly, etc. Besides modifying this operation in various respects, Amussat extended the applicability of it to the ascending colon; consequently, by his method it may be performed either upon the left or upon the right side, according to the situation of the deformity or obstruction.

The oblique incision in lumbar colotomy was first suggested, proposed, and commended by M. Baudens, an army surgeon of France, more than fifty years ago. He at that time pointed out clearly its decided advantages over the vertical incision of Callisen and the transverse incision of Amussat; it is consequently now more than half a century old, yet one would suppose, from reading what some authors have lately written concerning it, that it was of quite recent origin. It is strange that these authors neither speak of its origin nor mention the name of its originator. They speak of the vertical incision of Callisen and of the transverse incision of Amussat, but they never speak of the oblique incision as that of Baudens. Our sentiment in this respect, however, should always be, "Render to Cæsar that which is Cæsar's," or all that which bears his image and superscription.

More than thirty years ago the writer himself called the attention of the profession to the origin and the originator of the oblique incision in lumbar colotomy and to its value in that operation. In his *Treatise on the Congenital Malformations of the Rectum and Anus*, which was published in 1860, p. 332 *et seq.*, he says as follows:

"M. Amussat executed Callisen's operation as modified by himself in three instances of imperforate infants. His report of these cases I have presented in full, translated from the original. It will be found highly interesting and will still more fully illustrate his method of operating." (*Vide* Cases CCLXXXIV, CCLXXXV, and CCLXXXVI, p. 334 *et seq.*)

Amussat's operation requires considerable firmness of hand and great precaution in order to avoid wounding the serous membrane the preservation of which is its essential advantage. The most difficult and the most perplexing part of the operation, however, is to recognize the colon. The signs which M. Amussat gives, whether taken separately or collectively, are by no means diagnostic. He says, for instance, that the kidney forms an unerring guide to the colon, yet in operating in his third case (*vide* Case CCLXXXVI, p. 341) the kidney was actually mistaken for the colon, and the incision made into it disclosed the mistake. He himself admits that "even if the colon is distended there are no sufficient means of identifying it, though it should be perfectly laid bare." (*Troisième mémoire sur la possibilité d'établir un anus artificiel dans la région lombaire gauche, sans ouvrir le péritoine*, p. 56, 8vo, Paris, 1843.)

The greenish color of the colon, as well as the greater development of its muscular fibers, I would remark, might aid the operator to recognize it. Pressure and percussion with the fingers, on account of its elastic tumefaction, are also excellent means of ascertaining its presence.

M. Baudens, chief surgeon of the Military Hospital of Gros-Caillon, objects, however, to all of M. Amussat's signs. Should the colon be filled with fæces, says he, it would be hard, and then liable to be confounded with the kidney; should it be pliable and elastic from being distended with gas, then it could not, by the touch, be discriminated from the small intestines. Baudens recommends, as an infallible means, the employment of exploratory acupuncturation. Previous to opening what he supposes to be the colon, he introduces an acupuncture needle, furnished with a cannula, and, on withdrawing the needle, either gas escapes or the cannula is soiled with fæces if it has entered the colon. (*Gazette des hôpitaux de Paris*, année 1842, No. 27, p. 179.)

M. Baudens, however, with a much greater show of reason, objects to the transverse incision proposed by M. Amussat in Callisen's operation, in consequence of the liability of wounding some of the large branches of the genitocrural and inguino-cutaneous nerves, and also that it exposes too small an extent of the intestine, which should be opened by an incision at least one inch and a half long, as otherwise the anus will contract. He says that M. Amussat, moreover, is obliged to make a crucial incision in the deep parts, which perils the lumbar arteries, is painful, and augments the extent of the wound. In order to combine the advantages of a vertical and transverse incision, without the disadvantages of either, M. Baudens, from the obvious reasons given, proposed and commended an oblique incision in the operation for lumbar colotomy.

7 WEST FORTY-FIFTH STREET, *July 18, 1891.*

A Board of Surgeons for the Examination of Candidates for Admission into the Marine-Hospital Service will be convened at the United States Marine Hospital, St. Louis, Mo., on October 12th. Candidates for examination should make application to the Surgeon-General, U. S. Marine-Hospital Service, Washington, D. C., as early as practicable, and should inclose testimonials from at least two reputable citizens, preferably physicians, as to their professional and moral character. No person will be considered eligible for examination whose age is less than twenty-one or more than thirty years, or who suffers from any physical defect which would be liable to impair his efficiency or incapacitate him from duty. The candidate must be a graduate of a medical college of good standing, as evidence of which his diploma should be submitted to the board.

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DRUG ADULTERATION IN NEW YORK.

At a recent meeting of the New York State Pharmaceutical Association a report on the commoner forms of drug adulteration was presented, having for its chief subject the character of the drugs purchased by pharmacists from the wholesale drug-houses. Sweet spirit of nitre—always an interesting test-substance when adulteration inquiries are on foot—had been analyzed in sixty-eight instances, and found to be a very variable and unreliable product. Seven samples of this drug were found to contain the merest trace of nitrite of ethyl. "A whole gallon," says the report, as published in the *Druggist's Circular* for August, "could scarcely supply enough of the nitrite to make a teaspoonful of genuine sweet spirit of nitre." The pharmacists dispensed these samples on regularly written physicians' prescriptions in which the drug was designated by its official name. These pharmacists must, in very many localities, have failed to keep abreast of the progress in pharmaceutical knowledge regarding this substance, for, instead of keeping it in small bottles of a capacity commensurate with their sales—so that not more than three or four calls would serve to empty each of them—they had stored it in large receptacles, the frequent opening of which gave exit to the essential and volatile constituents. And it is surmised, further, that a portion, at least, of these pharmacists must have failed in regard to keeping their supply of the drug in a cool atmosphere. The boiling point of nitrite of ethyl being as low as 64·4° F., even our cool spring days are too hot to admit of the preservation of the drug in an ordinary shelf-bottle. With the heat of summer, moreover, this boiling point is exceeded so often and so long that a whole bottleful might readily become nearly worthless in a few days under the ordinary management of drugs in very many apothecaries' shops. In five instances there was an excess of the nitrite, probably due to some blunder on the part of the pharmacist when attempting to compound the drug afresh by the use of concentrated nitrous ether. In seven instances only was the drug correct according to the standard of the Pharmacopœia of 1880; six samples were rated as good or fair; fifteen were of about half-strength, while the remainder ranged from that point down to absence of all but slight traces of the nitrite. In other words, only twenty per cent. of the samples examined were sufficiently close to the standard to have their proper therapeutical value, while the remaining eighty per cent. would probably have been worthless or disappointing from a clinical point of view. The tests employed by the committee were made with Allen's nitrometer as recommended by Dr. Squibb in the third volume of his *Ephemeris*—a method which had before been practically indorsed by committees on adulteration in the same association—as the best for the determination of the percentage of nitrite of ethyl.

The Committee on Adulterations had also examined forty-six samples of Hoffmann's anodyne, with the result of condemning nearly seventy-five per cent. of them. Of Seidlitz powders, thirty specimens had been examined, and just one half of them found of full weight and good quality. Of potassium iodide, fifteen samples had been ordered, and three of them only were good; of magnesia, only one out of thirteen was up to the standard. These are among the most significant items of the report having a therapeutical bearing, although there are as many more that must prove instructive reading to the apothecaries throughout the State. It not infrequently happens, in investigations like this, that the greatest sinners are not caught. It might be well for the chemists of the State Board of Health to supplement some of these revelations with circulars of information and caution to the busy country apothecaries and others who have to rely largely on the uncriticised productions of the great city drug-dealers. Taken as a whole, the report can not be regarded as a reassuring picture or outline of the state of pharmacy in the smaller cities and towns in our commonwealth. The delinquencies, we assume, were for the most part met with among them, and it teaches us of the larger centers of population that we shall err on safety's side, if err we do at all, when we take away with us into the country a liberal supply of drugs that we know about.

CRANIECTOMY IN JACKSONIAN EPILEPSY.

At a recent meeting of the Paris Surgical Society, according to the *Gazette des hôpitaux* for June 6th, the president read a communication from Dr. Verchère containing the history of a case of Jacksonian epilepsy in which craniectomy had been performed. The patient was a young man who, at the age of twelve years, had received a blow upon the head. There was no injury of the scalp, but two weeks later the boy had an epileptic fit. This was followed by other attacks, which recurred at short intervals and were very severe. Bromide of potassium was given without effect. During ten years the attacks preserved the same character of severity and frequency. The convulsion was always preceded by a painful sensation in the right hand and forearm. In the intervals between the attacks the patient complained of excruciating pain in the left side of the head. He was taken to Charcot, who made the diagnosis of Jacksonian epilepsy and advised an operation. This was done by Dr. Verchère on April 18, 1890. An opening six centimetres square was made by successive applications of the trephine, and two diagonal incisions were made in the dura, laying bare the three frontal and the ascending parietal convolutions. No lesion whatever was found. The wound was closed in the usual manner, two small drainage-tubes being first introduced. On recovering from the anæsthesia, the patient expressed himself as much relieved. The headache disappeared never to return.

A few days after the operation right facial paresis and brachial monopelgia were noted; at the same time a slight convulsion occurred. The paralysis gradually disappeared. On the 30th of July, three months after the operation, there was a second convulsive attack, and in November a third. Since then there have been only very slight seizures at very long intervals.

In discussing this case, M. Terrier stated that the absence of any lesion was the rule in Jacksonian epilepsy. He had collected twenty cases, including one of his own. His own case was that of a man who had a violent convulsive contraction in the great toe of the right foot. Three months later he had a second attack, and a third four months afterward. Then the contraction disappeared and a paralysis of the part succeeded. At the same time the patient had typical epileptic convulsions.

Charcot diagnosticated a lesion of the paracentral lobule. Terrier performed craniectomy, but found no lesion. The dura was sutured and the patient recovered rapidly from the operation, but he continued to have slight convulsive attacks and the paresis remained unchanged. He died of some unknown cause.

Of the total twenty-one cases, twelve had been cured, six improved, and three unchanged. These figures, in Terrier's opinion, were encouraging and justified surgical intervention.

It is difficult to say how the operation acts. Horsley advises that the suspected motor center should be excised, even though it presents no lesion. Others, however, believe that the simple removal of pressure accounts for the relief from the symptoms in the successful cases.

MINOR PARAGRAPHS.

THE PATHOLOGY OF DIPHTHERITIC MYOCARDITIS.

The *Centralblatt für klinische Medicin* for June 6th gives an abstract of Huguenin's recent Paris thesis on this subject. The author's conclusions are based upon six cases observed by himself as well as twelve reported by other writers. He states that diphtheria, like all other severe infectious diseases, affects the muscular tissue generally, and especially that of the heart. The lesions of the myocardium are both inflammatory and degenerative in their character. They are usually diffuse, and affect at the same time the muscular fibrillæ, the connective tissue, and the blood-vessels. Although these lesions scarcely impress the unaided eye, they nevertheless seem sufficient to impair the energy of the heart's action and so bring about cardiac dilatation and the formation of thrombi. A large number of the sudden deaths occurring during the course of diphtheria, or during convalescence afterward, must be attributed to an acute infectious myocarditis. This complication is seen, as a rule, only in cases of malignant diphtheria, and is then usually accompanied by paralysis of the soft palate and by marked albuminuria.

A NEW TREATMENT OF TYPHOID FEVER.

In the Brussels *Journal de médecine* Dr. Tordeus describes as new his method of treating typhoid fever. It consists in a combination of antipyretic and antiseptic measures. The remedies employed are acetanilide as an antipyretic and resorcin or thymic acid as an antiseptic. The combination of the two bases is not new in this country at least, many American physicians having for a long time used antipyretics in combination with carbolic acid, mercuric chloride, salicylic acid, or boric acid in the treatment of typhoid fever. But the combination of the particular remedies and the results of such combination are novel and worthy of note. By this combination the author has invariably succeeded in reducing the temperature of typhoid-fever patients to about normal, and sometimes even below that point, with such small doses of the remedies as would have produced no effect whatever if used separately. For example, the dose usually employed by Dr. Tordeus was three quarters of a grain of thymic acid and from a grain and a half to two grains of acetanilide, repeated not too frequently—say once in two hours. If by such doses a typhoid-fever temperature can be reduced from 104° F. to normal or near that point, the antipyretic must be re-enforced by the action of the other drugs, for certainly the quantity of acetanilide alone would produce no such reduction. No unfavorable symptoms were produced in any of the author's cases by the action of the drugs or by the rapid reduction of temperature; and, as his records seem to have been carefully kept, the method seems well worthy of trial.

THE PHYSIOLOGICAL ACTION OF MORPHINE ON THE LOWER ANIMALS.

M. P. Guinard has experimented with the drug, and gives this *résumé* in the *Journal des sociétés scientifiques* for December 31, 1890: Whatever the dose is, it is always an excitant and an energetic convulsant to cats, although their nervous system seems shocked and weakened, and they fall under the influence of anæsthetics much quicker after a preliminary injection of morphine. An analogy is drawn between this and the action of the drug in the human being, particularly in some patients among women, on whom morphine is often seen to have no effect whatever. M. Milne-Edwards stated that, while experimenting on lions and tigers, he had found them equally refractory to the stupefying action of morphine.

A CASE OF LEPROSY IN IRELAND.

There is at present at Hillsborough, near Lisburn, in the North of Ireland, a young man who is a sufferer from leprosy. The leper was born in Rangoon, Burmah, and resided there until ten years of age, and it is supposed that he contracted the disease in that country. The guardians of Lisburn Union have taken measures to isolate the patient, and at considerable expense have prepared apartments at the workhouse, every precaution being taken to secure his isolation. His mother will act as his nurse.

PHYSICAL EXAMINATION UNDER WATER.

Vratch for April 4th quotes Dr. Chapowski, who speaks of the examination of patients in plunge baths as the best method of appreciating the state of the abdominal organs, the advantages being: 1. The relaxation of the abdominal muscles. 2. The ease with which the patient can assume various postures. 3. The lessened amount of pain on pressure. The author has tried this method in diagnosticating movable kidney, enlarged spleen, neoplasms in the abdominal cavity, etc.

AN OPERATION FOR EQUINO-VARUS.

M. Kirmisson, in the *Union médicale*, reports in the service of M. Boursier two cases of inveterate talipes equino-varus cured by removal of the astragalus. There was slight shortening with a little rolling of the foot, but functionally the member was almost all that could be desired.

THE POPULAR IMPRESSION OF LEPROSY.

Dr. Cyrus Edson, chief inspector of contagious diseases of the New York City Board of Health, presents in the *North American Review* his reflections concerning the sensational articles that appear from time to time in the secular press on "that dread scourage, leprosy." He properly deprecates these articles as essentially wide of the truth and harmful to the uninformed populace.

SURGERY IN KASHMIR.

Dr. Arthur Neve and Dr. E. F. Neve, brothers, who are serving as medical missionaries at Srinagar, Kashmir, have, in the period of eight years ending in 1890, performed 13,000 surgical operations, of which 3,400 were major operations. There were only twenty-nine fatal cases in the latter class, or a mortality of less than one per cent.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 18, 1891:

DISEASES.	Week ending Aug. 11.		Week ending Aug. 18.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	0	0	0	0
Typhoid fever	42	6	45	12
Scarlet fever	90	17	44	8
Cerebro-spinal meningitis	1	1	1	2
Measles	80	7	84	11
Diphtheria	62	18	60	16
Small-pox	0	0	0	0
Varicella	1	0	1	0
Whooping-cough	2	3	2	0
Erysipelas	0	0	0	0
Leprosy	0	0	2	0

The Mississippi Valley Medical Association.—Dr. I. N. Love, chairman of the Committee of Arrangements, has sent us the following:

"To the Subscribers and Readers of the *New York Medical Journal:*

"The Mississippi Valley Medical Association will hold its seventeenth annual session at the Pickwick Theatre, Jefferson and Washington Avenues, St. Louis, on October 14th, 15th, and 16th. A full programme of interesting papers has been prepared, and provision has been made for the fullest, freest, and most complete discussion of the same. Representative men from various sections of the country have been invited to open the discussions. The local profession of St. Louis is a unit to the end that every visiting physician shall be received and welcomed in a regular warm-hearted, St. Louis style. The same qualifications are requisite for membership in this association as for the American Medical Association, the former being subordinate to the latter. If eligible, you and your friends, together with your wives and families, are most cordially invited to visit St. Louis and enter into the scientific work and the social pleasures as you may desire."

Membership in the American Medical Association.—This is obtainable at any time by a member of any State or local medical society which is entitled to send delegates to the association. All that is necessary is for the applicant to write to the treasurer of the association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own society, signed by the president and secretary of said society, with five dollars for annual dues. Attendance as a delegate at an annual meeting of the association is not necessary in order to obtain membership. On receipt of the above-mentioned amount the weekly *Journal of the American Medical Association* will be forwarded regularly.

A Successor to Professor Koch.—About a year ago Dr. Koch resigned the directorship of the Hygienic Institute of Berlin, and Dr. E. von Esmarch, a son of the Kiel professor of surgery, was temporarily appointed to the chair. Recently, however, the permanent selection has been announced of Dr. Max Rubner, of Marburg University. The new director is thirty-seven years of age, and was brought up in the school of Karl Voit, of Munich. Rubner was called to a chair in Marburg in 1885, and became full professor in 1887.

The World's Columbian Exposition.—On June 1st a medical bureau, consisting of Dr. John E. Owens, medical director, and Dr. W. H. Allport, Dr. N. R. Yeager, and Dr. S. C. Plummer, assistant surgeons, was organized. The bureau began its work, that of attending to the sanitation of the grounds and furnishing medical attendance to the employees, on the 1st of July. A temporary dispensary and emergency hospital have been prepared, and an ambulance service has been provided.

The Congress of American Physicians and Surgeons.—The attendance of well-known foreign medical men at the congress seems likely to be considerable. We learn that Sir William MacCormac, Mr. Arthur Durham, and Mr. Reginald Harrison will sail from Liverpool on the 26th inst. for the purpose of attending the congress.

The University of Michigan.—Dr. Victor C. Vaughan has recently been elected dean of faculty in the medical department, in succession to Dr. C. L. Ford, who has resigned.

The International Congress of Hygiene and Demography.—It is announced that the next meeting will be held in Budapest.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending August 15, 1891:*

Marmion, R. A., Surgeon. Detached from the Navy Yard, Norfolk, and ordered to the Navy Yard, Boston.

Winslow, G. F., Surgeon. Detached from the Marine Rendezvous, Boston, and ordered to the Navy Yard, Norfolk, Va.

Parker, J. B., Surgeon. Detached from the Navy Yard, Boston, and placed on waiting orders.

Braithwaite, F. G., Assistant Surgeon. Ordered to the Receiving-ship Wabash at the Navy Yard, Boston.

Uric, J. B., Assistant Surgeon. Detached from the Receiving-ship Wabash, and ordered to the Marine Rendezvous, Boston.

Cordeiro, F. J. B., Passed Assistant Surgeon. Detached from the Naval Hospital, Chelsea, Mass., and granted two months' leave of absence.

Pickerell, G. McC., Passed Assistant Surgeon. Transferred from hospital at New York to hospital at Chelsea.

Baker, J., Passed Assistant Surgeon. Detached from U. S. Steamer Palos and authorized to delay reporting in the United States for six months.

Sayre, J. S., Passed Assistant Surgeon. Detached from the U. S. Steamer Ranger and ordered to the U. S. Steamer Palos.

Means, V. C. B., Passed Assistant Surgeon. Ordered to the New York Naval Hospital. September 1st.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending August 8, 1891:*

Purviance, George, Surgeon. Detailed as chairman of the Board of Examiners. August 8, 1891.

Sawtelle, H. W., Surgeon. To proceed to Portland, Me., for special duty. August 3, 1891.

Godfrey, John, Surgeon. To represent the service at the Seventh International Congress of Hygiene and Demography, July 25, 1891. Detailed as a member of the Board of Examiners. August 8, 1891.

Irwin, Fairfax, Surgeon. Detailed as recorder of the Board of Examiners. August 8, 1891.

Mead, F. W., Surgeon. Granted leave of absence for thirty days, July 30, 1891.

Carter, H. R., Passed Assistant Surgeon. Granted leave of absence for thirty days. August 8, 1891.

Carmichael, D. A., Passed Assistant Surgeon. Granted leave of absence for thirty days. August 3, 1891.

Pettus, W. J., Passed Assistant Surgeon. To proceed to Wilmington, N. C., for temporary duty. July 31, 1891.

Perry, J. C., Assistant Surgeon. Granted leave of absence for twenty-seven days. July 28, 1891.

Letters to the Editor.

A MALFORMATION OF THE RECTUM.

Elizabeth, N. J., *August 1, 1891.*

To the Editor of the New York Medical Journal:

Sir: I have recently read in medical literature something about malformed organs which brings to my mind a case that I saw a little more than a year ago. The case was of considerable interest to me, first because it taught me to carefully examine a new-born babe, and, secondly, because I was spared by the refusal of the parents the pain and chagrin that would have followed had I operated. I take these notes from my note book, made at the time of the discovery. Mrs. E. was delivered of an apparently healthy female child at 3 a. m. The child weighed about nine pounds. I saw her seven hours after delivery, and she was doing well. I called during the evening, when the nurse informed me that the baby's bowels had not been moved, notwithstanding it had emptied the breasts of their colostrum and she had given it a dose of syrup of rhubarb. I told her to wait a reasonable time and, if they failed to move, give it an enema or a dose of castor oil. Upon my arrival next morning I was told that the child had not yet evacuated its bowels. Being somewhat annoyed, I instructed the nurse to furnish me with the necessary articles and said I would give the child an injection. I attempted to introduce the nozzle of a syringe into the rectum, and to my surprise it would not enter more than half an inch. I then made an examination and found that my finger would not enter the rectum to a greater depth than half an inch, when the gut terminated in a *cul-de-sac*. I could find no evidence of the other end of the gut, and, from the feeling it imparted to my finger, I was satisfied there was more than a membrane stretched across the rectum. I explained the situation to the parents, but they positively refused to allow of any operation. The child died on the eighth day from acute peritonitis. At the autopsy I found that an operation would have proved futile except the operation of colotomy. The anus and the lower end of the rectum were perfect. The upper end of the rectum terminated in a pouch which was adherent to the bladder and uterus by strong fibrous bands, not the product of the peritoneal inflammation. I could discover no communication between the bladder, the uterus, and the rectum. In passing my finger up the rectum I penetrated the blind extremity and my finger appeared in the peritoneal cavity fully three fourths of an inch from the other end of the gut, which was in front and to the left of my finger.

Norton L. Wilson, M. D.

SHALL PHYSICIANS DISPENSE THEIR OWN MEDICINES?

Howell, Mich., *June 18, 1891.*

To the Editor of the New York Medical Journal:

Sir: I desire a few lines of your space in which to compliment Dr. A. W. Herzog, of Hoboken, N. J., on his article in your journal entitled Shall Physicians dispense their own Medicines? I for one answer this question in the affirmative, and am glad to see the writer bring it before the mind of the medical profession. Dispensing one's own medicines is a sure protection against the cupidity and (often) incompetence of the druggist. I am free to say that all druggists are not alike in this matter, but from personal experience I *know* some of them do practice the grossest violation of honor in the case of a physician's prescription. During the past three years I have dispensed my own medicines, and shall continue to do so.

J. A. Wessinger, M. D.

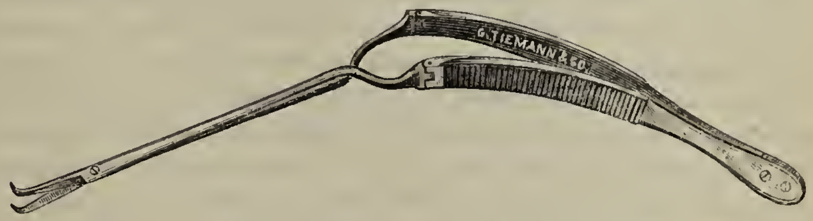
New Inventions, etc.

NEW EAR SCISSORS

By Alvin A. Hubbell, M. D.,

BUFFALO, N. Y.,
PROFESSOR OF DISEASES OF THE EYE AND EAR IN THE MEDICAL DEPARTMENT OF NIAGARA UNIVERSITY.

In the treatment recently of a case of congenital occlusion of the external auditory canal I found it necessary to use some instrument whose blades would cut one sixth to one fourth of an inch at right angles to the axis of the canal. The cutting points of Sexton's combination forceps, etc., were tried, but they did not fully answer the purpose. I presented the difficulties under which I was laboring to Messrs. George Tiemann & Co., with some suggestions as to what I needed, and they constructed the scissors represented in the accompanying cut.



The blades are bent near the point so as to extend about one sixth of an inch on a curve nearly at right angles to their main portions. The latter are about half an inch long. The blades are so made and adjusted as to cut cleanly in both their axial and curved parts. The handles extend backward from the blade-joint an inch and a half and are attached by joints to a forceps spring, which is bent downward like an ordinary ear forceps, so as to be out of the line of vision when being used. The instrument is light and yet strong, and is so ingeniously constructed as to open and close in the auditory canal with perfect ease and at the same time without obstructing a view of the parts to be reached by it in a passage not below the medium size.

These scissors have proved eminently serviceable in cutting away growths and tissues from any part of the bottom of the auditory canal. They can be used much more easily and effectively than many other instruments, and will cut both lengthwise and transversely to the canal. They have appeared so useful to me that I venture to call the attention of the profession to them.

The instrument can be obtained of the manufacturers, George Tiemann & Co., 107 Park Row, New York.

212 Franklin Street, *August 1, 1891.*

Miscellany.

The Congress of American Physicians and Surgeons.—Dr. Samuel S. Adams, of 1632 K Street, Washington, D. C., has issued the following circular, dated August 8th: I inclose herewith for your information a memorandum with regard to reduction of railroad fares for those attending the Second Congress of American Physicians and Surgeons. You will see from this that, to enable any member to obtain the reduction, there must be present at least one hundred persons holding special certificates. Will you, therefore, please notify me, without delay, as to whether you intend to avail yourself of this method of obtaining reduction in fare, and also whether you will be accompanied by any members of your family who will also desire to avail themselves of such reduction? Early in September the committee will inform you, by circular, as to whether one hundred persons or more have sent notice that they will avail themselves of this method of obtaining reduction, and will obtain special certificates for the purpose. In case there should not be one hundred persons who indicate their intention of doing this, only the ordinary reduction of rates on round-trip excursion tickets can be obtained by those coming to the Congress.

Reduction in Railroad Fares.—The Trunk Lines, the New York and Boston lines, the Southern Passenger Association, and the Central Traffic Association will transport persons from points on their lines to Washington and return at the price of one and one third the regular fare on the following conditions: 1. There must be an attendance at the meeting of not less than one hundred persons holding special certificates. 2. The going ticket must be purchased within three days before the opening date of the meeting. 3. Each person availing himself of the concession must pay full first-class fare going to the meeting, and must obtain a certificate from the agent of whom the ticket is purchased. 4. Those holding such certificates, when countersigned by the proper officer at the Congress, can obtain return tickets at one third the highest limited fare. *Certificates are not transferable, and the return tickets secured upon certificates are not transferable. If any of them are sold or transferred, they must be redeemed at the highest first-class rate by the person making such sale or transfer.* No refund of fare will be made on account of any person failing to obtain a certificate. Those who wish to avail themselves of this method of obtaining reduction in fares should present themselves at the office for certificates and tickets at least thirty minutes before departure of trains. It is absolutely necessary for each passenger before starting to obtain a certificate from the ticket agent of whom the going ticket is purchased, otherwise he can obtain no reduction in the return fare. There will be no stop-over privileges on the return tickets, which must always be by the same route as the going ticket. Members may obtain tickets on these conditions for their wives and members of their families, as well as themselves. Following is a list of the roads making these concessions:

Trunk Line Passenger Committee.—Reduction in Fare on Certificate Plan.—1. The reduction is to persons going to the meeting from Trunk Line territory—*i. e.*, from Niagara Falls, Buffalo, and Salamanca, N. Y., Pittsburgh, Pa., Bellaire, O., Wheeling, Parkersburg, and Charleston, W. Va., and points east thereof, except in New England. *List of Roads making the Concession:* Addison & Pennsylvania, Allegheny Valley, Baltimore & Ohio (Parkersburg, Bellaire, and Wheeling, and east thereof), Baltimore and Potomac, *Bennington & Rutland, Buffalo, Rochester, & Pittsburgh, Camden & Atlantic, Central of New Jersey (except locally between Philadelphia and New York), *Central Vermont, Chesapeake & Ohio (east of Charleston, W. Va.), Cumberland Valley, Delaware, Lackawanna, & Western, Elmira, Cortland, & Northern, Fall Brook Coal Co., *Fitchburg, *Grand Trunk, Lehigh Valley, New York Central & Hudson River, New York, Lake Erie, & Western (east of Salamanca and Buffalo), New York, Ontario, & Western, New York, Philadelphia, and Norfolk, Northern Central, Pennsylvania (except locally between Philadelphia and New York), Philadelphia & Erie, Philadelphia & Reading (except locally between Philadelphia and New York), Philadelphia, Wilmington, & Baltimore, Rome, Watertown, & Ogdensburg (except on Phœnix Line—stations between Syracuse and Oswego), Western New York & Pennsylvania, West Jersey, West Shore.

New York and Boston Lines Passenger Committee.—List of Lines making the Concession, and Points thereon from which it applies: Boston & Albany R. R., New York & New England R. R., New York, New Haven, & Hartford R. R., New York, Providence, & Boston R. R., Old Colony Railroad, Fall River Line, Norwich Line, Providence Line, Stonington Line.

Southern Passenger Association, composed of the following companies: Alabama Great Southern Railroad, Atlantic Coast Line, Atlantic & West Point Railroad, Brunswick & Western Railroad, Charleston & Savannah Railway, Central Railroad of Georgia, Cincinnati, New Orleans, & Texas Pacific Railway, East Tennessee, Virginia, & Georgia Railway, Georgia Railroad, Georgia Pacific Railway, Illinois Central Railroad; (*Lines South of the Ohio River*) Jacksonville, Tampa, & Key West Railway, Louisville & Nashville Railroad; (*Lines South of the Ohio River*) Louisville, New Orleans, & Texas Railway, Mississippi & Tennessee Railroad, Mobile & Ohio Railroad; (*Lines South of the Ohio River*) Memphis & Charleston Railroad, Nashville, Chattanooga, & St. Louis Railway, New Orleans & Northeastern Railroad, Norfolk & Western Railroad, Pennsylvania Railroad; (*Lines South of Washington*) Port Royal & Augusta Railway, Raleigh & Gaston Railroad, Richmond & Alleghany Railroad, Richmond & Danville Railroad, Richmond, Fredericksburg, & Potomac Railroad, Rome Railroad, Savannah, Florida, & Western Railway, Seaboard & Roanoke Railroad, Shenandoah Valley Railroad; (*Lines South of Potomac River*) South Carolina Railway, Vicksburg & Meridian Railroad, Western & Atlantic Railroad, Western Railway of Alabama.

Central Traffic Association.—The territory of the Central Traffic Association is bounded on the east by Pittsburgh, Salamanca, Buffalo, and Toronto; on the north by the line of and including points on the Grand Trunk Railway, from Toronto to Port Huron, thence via Lake Huron and Michigan to the north line of Cook County, Illinois; on the west by the west line of Cook County and the Illinois and Mississippi Rivers to Cairo, including Burlington, Keokuk, Quincy, Hannibal, and St. Louis; and on the south by the Ohio River, but including points on either side of that river.

The Address in Surgery at the Recent Meeting of the British Medical Association was delivered by John Chiene, M. D., F. R. C. S. Ed., F. R. S., professor of surgery at the University of Edinburgh and surgeon to the Royal Infirmary, Edinburgh. We are indebted to the *British Medical Journal* for proof-sheets of the address, which was as follows:

Mr. President and Gentlemen: "There are duties difficult of fulfillment pertaining to every position in life, and there are duties attached to public professional life from which no man can assume to himself the right to shrink, with whatever diffidence and incapacity they may be undertaken." These are the opening words in one of my favorite books, and they express my feelings so well to-day that I do not hesitate to adopt them. Some years ago a friend of mine was sitting in the Surgical Section at a British Medical Association meeting. He overheard a conversation near him. "Who is that sitting at the table?" said one, pointing to an office-bearer. The answer was: "I do not know him, but he must be a wise man—he has never opened his mouth since I entered the room." The person under discussion was then secretary of the Surgical Section; he now occupies a more important position, and his first thought this afternoon in addressing you is that he is throwing away his best chance of being considered a wise man. The silent people in this world, as a rule, have the best of it, but silence is not permissible to me to-day.

In the Address on Surgery I come before you with a free hand. The burden that is upon me is by no means lessened by the thought that the invitation is mainly intended as a compliment to the school with which I am proud to be connected, and that many of my audience, who are Edinburgh men, hope that, speaking in the name of the school, I will not speak unworthily. The mode, the method, and the subject lie solely with me, and I trust I have not erred in the choice that I have made.

Since my student days the importance of principles has ever been before me, due, as every old Edinburgh student in the sixties will acknowledge, mainly to the teaching of Goodsir and Syme. Since my student days, when Carlyle was our rector, hero worship has been to me an incentive and an encouragement.

My hero for to-day, whom I never saw, but whose one great work has been to me a classic, taught me to value a great principle, and I can not but think that those present who knew him personally, who worked with him and were taught by him, will be the first to acknowledge that in taking him, and the great idea which he loved to inculcate, as my mainstay to-day, I am leaning on a strong staff, and that it will be entirely my own fault if I do not make the subject an interesting one. To those present who knew him not—there are not many present who do not know his work—it is an absolute pleasure to me to be the imperfect medium of an introduction. My hero is John Hilton, and my principle is *rest as a therapeutic agent in the cure of surgical ailments.*

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* Only for business originating at, or destined to, stations on the direct lines of these roads between Troy, N. Y., and Montreal, Canada.

Judging from the catalogue of Hilton's writings given in the great *Medical Dictionary*, which we owe mainly to the untiring energy of a not infrequent visitor at these meetings, Dr. J. S. Billings, of Washington, John Hilton must have been a silent man. Apart from those who were his immediate pupils, he seems to have given others only two opportunities of judging of his worth. On both occasions—thanks to the Royal College of Surgeons of England, who called on him to give the Hunterian address in 1867, and to deliver the lectures at the College in 1861, 1862, and 1863—he was pushed into positions which compelled him to put his ideas in print. It is to these lectures I owe so much, and my obligations are so great that I am compelled to embrace this opportunity of inculcating Hilton's great idea of the value of rest in surgical practice. I read the book by Mr. Joseph Bell's advice in my student days, and after I became a teacher in surgery I again renewed my interest in it, from reading a short paper by that master in surgery, Sir James Paget, who gave his own personal experience of the value of Hilton's method of opening an abscess. I have ever since given Hilton a principal place among my teachers. I have made constant reference to his worth in my daily work as a teacher, and recommended all my students to make part of themselves the great principle with which Hilton's name is so honorably associated. Bacon says there are books to skim over, books to read parts of, books to absorb; Hilton's book on *Rest and Pain* is one to absorb. Since Hilton's time—born in Essex in 1804, died in 1878—many changes have taken place in the practice of surgery. I ask, and wish to try and answer the question, What bearing has Hilton's main idea—good for all time—on our present work as surgeons? While I gladly grant that in this audience there are those who could, from more extensive knowledge, bring Hilton more vividly before you, yet I will yield to no one in my intense admiration for the man, and for the principle.

In estimating the impression which Hilton's book has made on my mind, and the effect it has had on my teaching and practice, it is very evident that I must draw largely for my illustrations upon my personal work; and, if I choose simple things, I have in a predecessor, Mr. Teale, of Leeds, an example of a surgeon who took in great part the simples as the subject of, in my opinion, one of the most interesting addresses in surgery recently delivered to this association. I will not only speak of things which illustrate the value of rest, but of things which cause unrest, the removal of which is the main aim of the surgeon. I am not going to attempt to define rest, or its opposite—unrest. There is always some molecular movement going on during life; a part can never be in a state of absolute rest. The term must always be a relative one. It has been divided into mechanical and physiological, but this division is a purely arbitrary one. It has, however, a mental and a bodily aspect; a psychical and a physical side; and without further preface I will take up first the mental, and afterward the bodily aspects of rest and unrest.

I estimate, year by year, more highly, the mental aspects of rest. The late Mr. Goodsir divided physiology into two divisions, anatomical and psychological, and in his graduation address in 1859 he laid down this axiom: "That the greater liability of man to disease is intimately related to his higher conscious intelligence"; he also says "that in the treatment of disease the adjustment may require to be, and in general must be, directed more or less to the psychical as well as to the physical conditions of the case."

We all know it is not work, but worry—mental unrest—which kills, so a person will bear much physical discomfort in order that he may be relieved of the mental discomfort of his condition. I take into consideration in my practice and in my operations the effect that my decision in recommending any special treatment will have on the mind of my patient. In operations for cancer we all know how frequently they are unsatisfactory, but I think we hardly estimate the great mental depression which often follows on our refusal to attempt to give relief, more especially after the recurrence of the disease—after the primary operation has taken place. An attempt—even if unsuccessful—to remove a tumor will often give the patient a feeling of mental rest in the very thought that no stone has been left unturned in the endeavor to give relief. I desire, as far as I can, to give my patient mental rest, and for this reason I am often impelled to make the endeavor by operative means to give that relief which, looked on simply from the physical side, it may be impossible to underestimate, but, looked at from the psychical side, it may be impossible to overestimate. For example, there is a class of cases which I have sometimes termed the "phobics"—syphilophobia, cancerophobia—in which the whole disease is psychic, and I know no condition in which I have more pleasure in giving relief, because the condition of these patients is a most unhappy one. There is one aspect of the mental side of disease which has, in my opinion, not received the attention which it deserves. When a patient is confined to his bed, away from his work, he is often suffering as much from the worry of mental inactivity as from the physical disease for which he is under treatment. I feel sure that the prescription "don't worry" might with advantage be burned, and that "do some work" should take its place. I have seen patients suffering from aneurysm who have shown decided improvement by encouraging them to do some light mental work.

This is an age of diagnostic incisions on the part of surgeons, and faith on the part of the patients that after the incision has been made and the part thoroughly examined the surgeon will have more light and be best able to judge as to what should be done. The patient may come out of the anæsthetic minus a limb, but he will feel that it was taken off only after the most careful examination and the fullest possible light had been thrown on the diseased area by free diagnostic incisions. One is reminded in this connection of a song by Sir Douglas Maclagan, the Nestor of medicine in the capital of the North:

Case Second. An unhealthy lad
  To Duncan's Ward came in, sir,
And showed to him a shocking bad
  Affair upon his shin, sir.
Says Duncan, twirling of his probe,
  I fear that this won't cobble;
'Twill never make a decent job,
  And all your life you'll hobble.
He gave the ether. Off the leg
  Was snipped before their noses;
Chap woke and found a wooden peg
  Where there had been necrosis.

The limb at that time was taken off because the surgeon said it should come off; now a limb is taken off because the surgeon feels and sees physically, not psychically, that it must come off. In diagnostic incisions I believe we have a valuable aid in avoiding psychical unrest. These diagnostic incisions are the direct outcome of the minimized danger of such incisions. A new diagnostic power has been placed in our hands. The first step in the operation is the diagnosis, and the surgeon has no hesitation in taking this step. He requires from his patient a free hand, he takes less on faith and more on sight. He avoids the necessity and uncertainty of guessing, which perhaps gave to the surgery of the past much of that something which made great diagnostic surgeons, but we must remember that this diagnostic power was the direct outcome of an experience largely founded on mistaken diagnosis. The present method trains the ready surgeon, and is, in my opinion, the method which best attains the object desired—namely, that the best is done for the patient.

I need not dwell on anæsthesia as a cause of rest in our patients, except to say that I still adhere to the views I expressed in a paper on Chloroform, read at the Cardiff meeting in 1885. I still hold that chloroform is the best anæsthetic; and I can not help, as a pupil of Syme, feeling pride that the decision of the Hyderabad Commission, presided over by Dr. Lauder Brunton, so fully bears out the views held by that far-seeing man. Cocaine as a local anæsthetic is, in my opinion, of great value in adults. I have never seen any of the evil results, local or general, which have been described. We must take care to use a pure solution and see that we do not inject it directly into a vein. These are the precautions which I have taken; and I use it either as a solution of salicylate of cocaine, or kept in pellets, and dissolved when required in camphor water or distilled water. I never inject more than half a grain. In the passage of bougies, in phimosis, in tracheotomy, in fissure, and in simple cases of fistula in ano, in excision of tonsils, before injecting iodine into a hydrocele, in small wounds before stitching, I have found the drug valuable. I allow four minutes to elapse after injection before performing the operation. To prevent urethral fever—a purely nervous lesion—before passing an instrument I have used it in the form of a cocaine bougie. It is right to say that the use of local anæsthetics—such as cocaine, ether, or chloride of ethyl—may be overdone. The work of the surgeon may require to be done in too hurried a manner, not altogether satisfactory either to the patient or to the surgeon. Mental unrest, arising from a feeling of work imperfectly done, worries the surgeon; and in any operation requiring time chloroform is to be preferred to the local anæsthetic.

Pain given to a patient, whether in the dressing of a wound or in the examination necessary to make a diagnosis, is a most fertile cause of unrest. Confidence is lost between patient and surgeon; this is more especially true in children. When I hurt a patient I always feel I am doing or have done wrong. Healthy wounds are not painful; the healing of a wound is a physiological process closely allied to—in fact, it is—growth. Inflammation in our wounds can be avoided, and, if avoided, then pain as a cause of unrest is unknown. Pain is to be avoided by every means in our power. Any movement of the patient is apt to cause pain, and every endeavor should be made, in the examination of the patient, to avoid pain. Also in the dressing of the wound the avoidance of movement is all-important, and in this connection I can speak very confidently of the value of the many-tailed bandage; the wound can be exposed without moving the limb. It is sometimes used to take the place of an ascending spiral; it can, however, be arranged as a spica or figure-of-8 bandage; any portion of the body can be covered with a many-tailed bandage. It always reminds me of the main characteristic of the British army. Each turn working well in unison with the neighboring turns, and each turn having an independent power in itself—for turn read soldier. In fracture of the pelvis it is infinitely preferable to a roller bandage; it can be tightened and loosened without moving the patient.

One of the most frequent causes of local unrest in wounds and the free serous oozing which accompanies it is the use of unnecessarily strong antiseptics. We can not avoid them altogether. We must use them in a thorough manner for the purification of our hands, of the skin of our patient, and for our instruments if we have not a sterilizing apparatus; but as regards the wound itself, given an aseptic wound to begin with, the less of the antiseptic the better; it is an irritant. A good many years ago a smart writer in a medical journal said: "Lister's arguments are getting stronger, his solutions are getting weaker." If he had said, "his arguments are getting stronger because his solutions are getting weaker," he would have been nearer the truth. Asepticism is taking the place of antisepticism. The extent to which this can be carried out will depend on the security we feel when we operate on unbroken skin that we have not introduced any causes of fermentation. If we have not this security, we must wash out our wound, after stitching, with an antiseptic, but let it be followed by an aseptic fluid in order to remove the antiseptic—the irritant—or at any rate see that no antiseptic is left in the wound. It has ever to be borne in mind—and this renders the work of the surgeon a more responsible one—that the main danger of contamination is from what is directly put into the wound, rather than from what *falls* into the wound. I am not prepared to allow that a wound is never contaminated from the air, but I am prepared to acknowledge that dirty skin, dirty instruments, and dirty hands are the main factors which cause fermentation in our wounds. In an investigation recently conducted in my wards by Dr. Hutton, fifteen different organisms have been found in the air; most of these are undoubtedly innocuous, but some may be hurtful. Never use a sponge twice in an operation, or, better still, never use a sponge at all; gauze which has been boiled and then placed in weak corrosive lotion is better than any sponge.

Another aspect of Hiltonism is the use of absorbable drains, so that dressing of the wound is not required in order to remove the drain. Pressure and careful apposition of the edges and surfaces, combined with the absence of any irritating antiseptic, have, to a great extent, done away with drainage of any sort; but here I think I have overshot the mark, because if any bleeding occurs, and if the pressure is not accurate, accumulation of blood takes place, and delayed healing is the result. This has lately been one of my main troubles in wounds, and I recall three cases of excision of the mamma within the year in which this has occurred and delayed union. I think the safer plan is drainage for twenty-four hours during the time when reactionary hæmorrhage is likely to happen. If India-rubber tubing is used, it can be arranged so that it can be removed without disturbance or exposure of the wound: cause the tube to project beyond the wound surface, then the blood and serous discharge pass into the substance of the dressing, and have no tendency to pass along the skin surface to the edge of the dressing. Free evaporation through the dressing is all-important. Dr. Werne Clarke has recently brought under my notice a corrosive dressing in which the outer layer is impermeable to liquids, although it allows of free evaporation. This dressing is made by Robinson & Co., Chesterfield, and, from the trial which I have made of it, I think it will take a place in surgical practice. Free drainage and its accompaniment, rest, is best attained in psoas abscess by a posterior opening at the lowest point of the abscess cavity (patient recumbent), in the angle between the outer edge of the erector spinæ and the crest of the ilium. From this opening we can sometimes reach the diseased area in the bodies of the vertebræ and remove necrosed fragments of bone. So also in retropharyngeal abscess; an opening posterior to the sterno-mastoid muscle acts in the same way. In both of these forms of abscess the aseptic management of the case is more easily carried out than when the opening is anterior. I have followed this method of treatment since 1876, and beg to recommend it to the profession.

Use leaden splints to steady limbs after amputation and excision. Shape the splint so that it can be unfolded without moving the limb. Anchor the arm by the side with a leaden splint after excision of the mamma. Apply your pressure firmly, but always leave a distal portion of the limb exposed, so that, if it swells, then the pressure is overdone and the bandage must be loosened. We know pressure is properly applied to any part if it fulfills two conditions—painlessness and non-interference with the blood-current through the part.

Horse-hair stitches are valuable, combining rigidity and elasticity—rigidity acting as a splint steadying the edges, elasticity enabling them when cut to be removed without pain. After cutting a stitch, lay hold of the knot and pull toward the side on which the loop has been cut; in this way all strain on the edges of the wound is avoided.

A plaster applied over a boil in its early stages acts as a splint, steadies the part, and relieves pain. The boil is frequently aborted by this simple means.

These, gentlemen, are simple things, and I feel as I write that I owe an apology for their simplicity. They are, however, all illustrations of the effect which Hilton's work has made on my practice, and I hope they will be pardoned.

The value of extension in the treatment of fractures of the lower extremity is universally acknowledged; we have only to take care that it is not overdone. I do not think it is sufficiently often used in fractures of the upper extremity or after excision of the knee and elbow. In fractures, injuries, and diseases of the spine, in sacro-iliac disease, and in fractures of the pelvis, the use of double extension is also of undoubted value. I have used it since 1877 in these conditions, and I can recommend it with confidence. It may be used in three ways: (1) The patient horizontal, and a weight applied to the limbs, with a counter-extending weight to the head; (2) the head of the bed raised, a weight to the head, and the body acting as the counter-extending force; (3) the foot of the bed raised, a weight applied to the limbs, and the weight of the body acting as the counter-extending force. It is most valuable in the mobile portions of the spine—the cervical and lumbar regions. In dorsal disease, the first method is mainly used. In cervical disease the second method is used; in lumbar disease, in sacro-iliac disease, and in fractures of the pelvis, use the third method. As the pain subsides, rotation must be prevented by the double long splint when the disease involves the lumbar, dorsal, and pelvic segments. In the cervical region fix the head with a hollowed sand pillow or with a poroplastic splint, or with Fleming's India-rubber collar. Treves has demonstrated the value of rest in enlargement of the lymphatic glands in the neck by a similar contrivance.

In all cases in which complete rest of the trunk is called for, use a thick and firm mattress made in three pieces, the central portion of which can be withdrawn for the performance of the acts of defecation in both sexes, and the act of urination in the female. The prevention of bed-sores by the facility with which the sacrum and buttocks can be examined, and the dressing of these sores, when they do occur, is greatly facilitated by the triple mattress. In the diagnosis of injuries in the region of the hip, the use of Nélaton's line has been given up in my practice, because in order to reach the ischial tuberosity necessary for estimating the line the patient has to be moved. Its place is taken by noting the want of parallelism between two tapes, one passing through the anterior superior spinous processes, and the other through the tips of the great trochanters of the femur.

On the arrest of hæmorrhage we have a valuable paper by Dr. Milne Murray in the *Edinburgh Medical Journal* of August and September, 1886, on the explanation of the action of hot water, which well illustrates rest. He shows that the general shock and the local reaction are greatly lessened after using hot water, as compared with the former method by means of cold. In epistaxis prevent the air passing through the nasal cavity by tightly grasping the nose, and the epistaxis will frequently cease, the part being kept at rest.

In cranial surgery, in the curved incision, as suggested by Mr. Victor Horsley, we have a means of restoring a flap to cover and give support to the denuded brain tissue or dura mater. In intracranial hæmorrhage, intradural and extradural, we now feel justified in cutting down and arresting the hæmorrhage by ligature, or by the hot douche, and from one case in which I operated on a person, comatose, with Cheyne-Stokes respiration, and a pulse of forty to the minute and on the point of death, I feel justified in recommending that, in apoplexy, an opening into the cranial and dura box is a justifiable surgical procedure, giving rest by relieving tension. This patient was shown by Dr. Smart at the Medico-Chirurgical Society of Edinburgh in June of this year.

In spasmodic wryneck we have the patient in constant unrest. What relief is given by excision of a portion of the spinal accessory nerve! In March, 1881, I showed a case at the Medico-chirurgical Society of Edinburgh. From the result in that patient, and from similar cases which I have seen since 1881, I think the operation well worthy of more extended trial.

In rectal surgery gradual dilatation of the sphincter ani before operations gives rest after the operation, as it is followed by a temporary paresis. In colotomy the inguinal region is preferable to the lumbar, because mental worry is avoided by making an artificial anus in a situation which the patient himself has under command. In lumbar colotomy the *cul-de-sac* between the rectal stricture and the opening in the colon fills with fæces and causes unrest. In inguinal colotomy, if the opening is intended to be a permanent one, I bring the whole lumen of the sigmoid flexure out as a loop through the wound in the wall, and fixed there with long pins passed through the abdominal wall and mesocolon, and again through the abdominal wall, bringing the parietal peritonæum in contact with the visceral peritonæum. Stitches are a source of unrest; simple apposition is all that is necessary to obtain firm union.

In the ligature of internal piles the division of the mucous membrane at the anus with scissors before transfixion and ligature and tying the ligature tightly so as completely to strangulate the pile are both means which diminish pain after the operation. The pile mass dies without any inflammation; it dies of dry painless gangrene. If this had been more frequently attended to, we should have heard less of other methods of treating internal piles. While I say this I desire most emphatically to express my complete accordance with Whitehead's view, that in cases in which the whole circumference of the gut i affected, excision is the most thorough and satisfactory method of treatment.

There is no organ in which the value of rest is better illustrated than in the bladder. In disease its systole and diastole can be checked in different ways, and the cystitis caused by the unrest, as evidenced by frequency of micturition, is relieved. This can be done by fixing a gum elastic catheter in the bladder, taking care that the eye of the instrument is just within the cavity, and attaching to the catheter an India-rubber tube which passes into a vessel at the side of the bed. In 1876 I showed that if the tube passes under water and if the instrument and tube are full of fluid, there will be, by the siphon action of the arrangement, if the water in the vessel is at a lower level than the bladder, a head of water, which, by its suction, will remove the water from the bladder as it passes from the ureters. The amount of suction will depend on the difference of level, and I have found by experience that a foot of fall is generally sufficient to keep the bladder empty. If the fall is greater, then the mucous membrane is apt to be sucked into the eye of the instrument, and a block takes place, the bladder filling with urine. When this happens, pain will at once be felt by the patient; in fact, his sensations are the best guide to the height at which the vessel at the side of the bed should be placed. By this simple means we can give the bladder rest. In external division of stricture of the urethra the same means can be used to keep the wound absolutely dry and facilitate healing. We can also rest the bladder by perineal or by suprapubic cystotomy. In either case the bladder collapses and the viscus gets rest. In intractable cases of cystitis in the female the suprapubic opening deserves further trial. In connection with the bladder may I remind those present of the debt we owe to Bigelow for showing us that the unrest after lithotrity is due to fragments of stone left in the bladder after crushing, and how important it is to crush and remove entirely all the fragments at one operation.

In hæmorrhage from the bladder or prostate a suprapubic opening arrests the hæmorrhage, the cause of which is the contractions of the bladder, which at once ceases when the bladder is opened. The hæmorrhage during the operation may be checked by the use of the hot douche.

In vesical hæmorrhage the mere washing out of the bladder with hot boric lotion often checks the bleeding; in fact, hæmorrhage from any cavity is most easily and satisfactorily checked by the hot douche.

In tracheotomy, Hilton points out the value of rest to the inflamed larynx. One of the main objects of the surgeon is to prevent any blood getting into the trachea, and thence to the lungs, where it is the most fertile source of unrest, setting up pneumonia, the common cause of death after tracheotomy, when the death is not due to the disease for which the operation was performed.

In the treatment of cut throat, if we perform tracheotomy at once and accurately unite the wounded surfaces, we attain more rapid healing, because the wound is not used as a funnel through which the air is admitted to the lungs. Movement of the parts is reduced to a minimum: the part, in fact, is kept in a state of rest, encouraging and facilitating healing.

In the application of a bandage to varicose veins let us see that it is applied before the patient gets out of bed and taken off after he is in bed; so also in the application of a truss in hernia the same rule must be constantly followed. Allow the veins to fill, or the hernia to come down once in twelve hours, and the bandage or truss ceases to act as a curative, and only acts as a palliative agent. We allow, by the vein filling or the hernia coming down, a temporary unrest which does away with the good of the previous twelve hours' support of the retentive apparatus. It is well to note that continuous gentle elastic pressure will often act most efficiently, painlessly, and restfully in reducing an irreducible hernia, a prolapse of the rectum, or a paraphimosis.

I might multiply examples, but I have given enough to illustrate my subject. I have endeavored to expound the healing doctrine of rest. It has been my privilege to point to John Hilton as one of its great expounders, who has, more than any one else, impressed me with its value in surgery. I am anxious that anything I may have said will in no way interfere with the necessity, for those who have not done so, of a careful perusal of his work. You will not agree with many things he says. Take comfort in the thought that it must be a poor book with which you are entirely in agreement; its stimulating effect on you will be absent. After you have read the book you will grant that in him we have a careful observer and a conscientious worker, and one whose methods we will do well to imitate.

Before I conclude I would wish it to be understood that there is another side to this picture, or perhaps it may be the same picture looked at from a different standpoint. It is, that much harm may be done by too excessive attention to rest. Evil may result from too prolonged rest. Mechanical rest may, in one sense, be antagonistic to physiological rest. Mechanical rest, in many cases, must be interfered with in order to attain physiological rest. An example will best show my meaning. Immediately after an injury the effusions into the tissues may, by their presence, interfere with the normal blood-current through the part. At a later date these effusions are replaced by organized material which will also act in the same way. The nerve equilibrium will also be altered. The part will then be, from the vascular and nervous side, in a state of physiological unrest, and this unrest will be intensified by prolonged mechanical rest, because, unless there is a normal blood-current, the effusions and fibrous material will not be removed. It is therefore necessary that, while we maintain mechanical rest after a part is injured, we should at the same time adopt some means to remove these products. It is here that massage is so valuable; lightly applied, it has a marked soothing influence on the nerve disturbance; more strongly, though still gently applied, it will get rid of the effusions by causing a temporary congestion and free flow of blood through the part; still more strongly applied, it breaks down fibrous adhesions and gets rid of the pain felt in certain movements of the limb. While the massage interferes with the mechanical rest, it acts directly in relieving the physiological unrest. Experience alone will tell how far we can go with massage in order to attain the one object—the physiological rest—while at the same time we avoid doing harm by its overuse by interfering with the mechanical rest. In acute sprains and strains it may be begun at once, gently night and morning, using elastic pressure with wadding and a flannel bandage in the intervals of the massage. In subacute cases it may be used more freely, wearing an elastic bandage in the intervals, along with limited use of the injured limb. In chronic cases, which are non-tuberculous, adhesions may be freely broken down, often giving immediate relief after months of partial impairment of usefulness.

I am also strongly of opinion that in fractures near joints, as in Colles's and Pott's fracture, massage may with advantage be begun within a week, with the result that while the repair of the broken bone is in no way interfered with (I rather think it is aided), the limb is a useful one at a much earlier period than is the case if, as in the orthodox treatment, the limb is kept absolutely quiet for three or four weeks. If we think only of the broken bone and forget the injury to the surrounding soft parts, the result is a stiff and useless limb, which will for a long time be a source of discomfort and helplessness to the individual. It is a question exercising my mind whether we should not apply gentle massage in all fractures, as a matter of routine practice, so long as we can do so without displacing or causing movement between the broken fragments of the bone. The use of extension during the massage applied to the limb beyond renders this method much more feasible than it formerly was when we depended entirely on splints applied at the seat of fracture commanding the joints above and below. It is interesting to note in this connection that no fractures heal more kindly and quickly than broken ribs, in which it may truly be said that during the whole process of cure the act of breathing is keeping up a constant gentle movement, a Nature's massage, which in no way interferes with the union of the broken bone.

In breaking down adhesions in old-standing cases of fracture, sprain, or strain, one must act in a decided manner. Their presence is associated with limited movement, pain on movement, or pain on pressure, and the use of firmly applied rotatory massage, or the sudden stretching of the tissues which are matted together, often gives immediate and lasting relief.

In the case of nerve stretching in sciatica, the cases which are benefited are, in my opinion, those which may be called trade sciaticas, due to some special position adopted in the special trade pressing on and irritating the sciatic nerve. You freely stretch the nerve, but do not interfere in any way with the sensory and motor functions, and the pain is relieved by breaking down the fibrous adhesions in the nerve sheath and among the nerve fibrils. May I say in passing that the operation is sometimes a source of psychical unrest to the operating surgeon if he does not easily find the nerve; this unrest is avoided if, in operating, the patient lying on his face, the surgeon will stand on the opposite side to the limb to be operated upon. If he then makes an incision over the nerve at the lower border of the gluteus maximus large enough to enable him to introduce his forefinger, which, using as a hook, he draws toward the middle line of the patient, he will at once find the nerve lying external to the muscles arising from the tuber ischii.

New lamps may have been expected of me to-day; if so, my hearers have been disappointed. "Let us make a stand on the ancient ways, and then look about us and discover what is the right and straight way, and so walk in it." Bacon was fond of quoting this passage, and it has been my motto. I have taken my stand on an ancient way; I have tried to polish and refill an old lamp.

James Hinton, another of my heroes, in one of his letters, writes: "Let me advise just once. I don't like an adviser much; but just this one thing—be reverent where you are ignorant, and attach no weight at all to your naturally feeling sure. We almost always feel sure wrongly—it is our own fate, it is our very being." The speaker to-day may be too sure, and may place too much reliance on rest as the most powerful therapeutic agent in surgical practice, but he can assure you that he has had Hinton's words constantly in his mind as he spoke, and what he has said is offered to this audience in the same spirit in which they were written by that philosophic surgeon. I began with a sentence from Hilton; I end with one from Hinton. These men had something in common. Hilton taught rest; Hinton sought it. In one of his last letters he writes these sad words: "I have tried for too much, and failed; but yet, perhaps, in that my failure God is giving me more than even I tried for. He has opened my eyes, at least a little, though I am blind and foolish still, no doubt. I will try and be wiser and look more, and care more what others feel." Strange words from one who spent his whole life for the good of others.

At a time fertile in unrest in religion, politics, and surgery, in the county in which Gilbert White spent his days, in the county in which he wrote one of the most restful—I had almost said *the* most restful—book I know, rest as a thesis is perhaps not altogether out of place, especially when I remember that to many of us this meeting is our annual holiday, our resting stage, and still more especially when I remember that we are enjoying the generous hospitality of the inhabitants of one of the main resting places in this country, where so many get that rest which enables them to go back to work with energies renewed and restored by the fresh air and restfulness of one of the most attractive rest resorts in Great Britain.

The Danger of Chloroform and the Safety of Ether as an Anæsthetic.—The *Lancet* prints the following letter from L. Hepenstal-Ormsby, M. D., F. R. C. S., of Dublin: No operating surgeon can read the medical journals' record week after week of Another Death from Chloroform without thinking of the possibility of such a catastrophe occurring in his own practice and how it may be averted. I have frequently, in the *Lancet* and elsewhere, brought before operating surgeons the responsibility incurred by subjecting a human being to the influence of chloroform as being the most dangerous form of anæsthetic. But since the report of the Hyderabad Commission was published, deaths from chloroform seem to be largely on the increase. At the Manchester Royal Infirmary, for example, since the beginning of the present year there were two deaths reported to have taken place during the administration of chloroform. Seeing that, apart from the climatic effects, the experiments of the Hyderabad Commission were mostly carried out on Indian dogs and monkeys, it is surprising that scientific men should rely on results so obtained, ignoring statistics with regard to human beings, which attest beyond all manner of doubt the danger of chloroform and the comparative safety of ether. I for one do not consider the results of the Hyderabad Commission conclusive or satisfactory, for I have too frequently witnessed at the operating table most painful incidents. I have seen patients under chloroform suddenly cease to breathe. The operation stopped, and all the while awful suspense takes possession both of the operator and the anæsthetist. Last week I witnessed in Dublin a fatal case from the administration of chloroform. The patient was a fine-looking, robust man, aged about fifty, suffering from cancer of the tongue. The surgeon who was about to remove the diseased part directed the house surgeon to administer chloroform, who carefully examined the patient's heart before the operation, and found it normal. On a previous occasion the man had been given ether to produce anæsthesia, but it was reported that he did not take ether well, though he was put under its influence all the same. Hence chloroform was administered on this occasion, in the most careful manner, with Skinner's apparatus. The man gave but two or three inspirations, when he died as suddenly as if shot through the heart. There was no sign of impeded breathing, no pallor of cheek—in fact, no warning whatever. Never shall I forget the consternation of those concerned; and no wonder, for here was a man in the plenitude of life and apparent vigor, cheerful in spirits, changed, with the appalling suddenness of a lightning flash, into a corpse. All means of resuscitation were promptly resorted to, but in vain; the man was dead. I consider it nothing short of culpable recklessness, with so many warnings, for any surgeon to persist in the use of chloroform in preference to ether on the score of convenience. No doubt death may be produced by any anæsthetic if pushed too far or administered by an inexperienced or careless person; and with such persons it often happens that an operator has to warn the administrator to devote his entire attention to the anæsthesia and not mind the operation. In certain small and rapid operations I think administrators frequently produce a greater degree of anæsthesia than necessary, and do not estimate the exact amount of anæsthesia requisite for the painless performance of any given operation. As the result of my own observation, chloroform seems to act as a direct poison on some persons, and kills, when it does kill, as suddenly as a pistol bullet would whose billet was the heart or brain. It gives no warning sign or indication till fatal symptoms are apparent and the patient is either actually dead or beyond any means of resuscitation.

Of ether my experience is different. It always gives warning, and the untoward effect may be almost instantly removed. Acting as it does directly on the respiratory functions, methods of resuscitation, as regards artificial respiration, can be immediately applied, and are, as a rule, nearly always successful. So long as I have the strong convictions which I entertain, based upon many years of practice, regarding the choice of an anæsthetic, I will raise my voice against the wanton administration of chloroform in preference to ether, which has been proved by undeniable statistics to be the safest anæsthetic known.

Case of Acquired Atresia Hymenalis.—In the *Australasian Medical Gazette* for June, Henry Forbes, M.B. et Ch. M. Aberd., relates the following history: E. S., thirty years old, domestic servant, single, was admitted, on the 2d of January, 1891, into the Charters Towers Hospital, complaining of dysuria and a swelling of the abdomen. Two days before, she had seen Dr. Browne, who sent her here.

She said she had enjoyed very good health at home, but since her arrival in Queensland she had suffered more or less from debility, though not enough to interfere with her work. She had been an inpatient at the Towers Hospital in June, 1890, when I attended her for a specific sore throat and a papular rash. Some time before this she had had a vaginal discharge following coitus, and afterward a swelling in the groin. These were treated by a doctor, but he can give me no particulars. I examined her at that time for the rash, but I did not notice any abdominal enlargement. Quite recently she had been Dr. Browne's patient for arthritis of the ankle, but complained of no abdominal inconvenience till a day or so before admission. She first menstruated at twenty, and has been very irregular throughout, sometimes missing several months. Her menses lasted usually a day, were very scanty, and were accompanied with great pain. Since her first admission into the hospital in June, 1890, she has not seen anything, and she thinks not for some time before; possibly not since she last indulged in sexual intercourse, the result of which was the vaginal discharge.

On admission, her ankle was swollen and walking difficult, the left thigh œdematous and tender, urination frequent and painful, and a large swelling occupied her abdomen, extending well above the umbilicus. A catheter showed the urethra and bladder normal. Rectal examination: a tight, rounded tumor, filling the pelvis and flattening the rectum against the sacrum, and vaginally the finger encountered an elastic swelling bulging between the majora and yielding to pressure. At the upper part of the distended hymen were some cribriform markings, but no visible cicatrix. On abdominal palpation was felt a large, tense swelling, rising out of the pelvis, extending almost to the umbilicus, and continuous with a smaller and harder tumor that reached two inches above the umbilicus, and was of the shape of the enlarged uterus. From the upper angles of the smaller tumor could be distinctly traced two hard, cord-like bodies, extending one toward each iliac fossa, and ending in ovoid enlargements. Percussion over the umbilicus gave a distinct thrill to the bulging hymen, and a hypodermic syringe introduced into it withdrew the characteristic tarry fluid of retained menses.

Dr. Browne and Dr. Paoli saw the case, and we agreed to tap. The smallest trocar was entered a little above the center of the hymen, and the fluid was very slowly withdrawn. After it had ceased to flow, a bistoury, guided in on the cannula, made a permanent opening. A large uterine irrigator was introduced into this, and the vagina—enormously dilated—was washed out with a hot saturated solution of boric acid till the fluid came away clear. The opening was dressed with salicylic wool. The syringing was continued daily for the next ten days; the discharge, which never became offensive, ceased in five, and the temperature on the two nights following the operation just reached 100° and then became normal.

The patient never had any abdominal tenderness, was kept in bed for three weeks, and at the end of that period menstruated freely and easily.

Vaginal examination immediately after the operation showed the vagina to be an immense cloaca filling all the pelvis, and the finger could just detect at the top a large ring of soft tissue representing the changed cervix. I examined her on Saturday, the 4th of April. The hymenal opening is now quite patent, the vagina has almost recovered its usual shape and consistence, but the cervix is still soft and swollen (though much smaller), and the os admits the tip of a small finger. Her menses are now regular and easy.

Notes.—1. Acquired atresia of the hymen or the lower part of the vagina seems to be rather a rare condition. Dr. Matthews Duncan, in his *Clinical Lectures*, says: "Sometimes the vagina becomes closed by the healing of sores, the result of sloughing from pressure during parturition, or the result of syphilitic infection; but though cases of stricture, more or less tight, and having a small lumen from these causes, are not uncommon, I have not seen one of complete closure (atresia), with retention and accumulation."

In this case I should think the atresia was produced either by the healing of a syphilitic sore (though no scar was visible), or by the efforts at intercourse producing inflammation of a tough hymen with possibly a very small opening.

2. The total absence of subjective symptoms. She never noticed her increase in size even till the dysuria called her attention to it.

3. The fluid removed measured sixty-five ounces. Duncan says the quantity of accumulation varies much; that in his own practice he never saw more than fifty ounces, though he had heard of a well-authenticated case which had one hundred and five ounces.

The Influence of Diet on the Growth of Hair.—In the *British Medical Journal* for July 25th Dr. E. D. Mapother says:

Several cases of shedding of hair after influenza have confirmed my opinion that diet has much to do with the production and with the cure of symptomatic alopecia. Hair contains 5 per cent. of sulphur, and its ash 20 per cent. of silicon and 10 per cent. of iron and manganese. Solutions of beef, or rather of part of it, starchy mixtures, and even milk, which constitute the diet of patients with influenza and other fevers, can not supply these elements, and atrophy at the root and falling of hair result. The color and strength of hair in young mammals is not attained so long as milk is their sole food. As to drugs, iron has prompt influence. The foods which most abundantly contain the above-named elements are the various albuminoids and the oat, the ash of that grain yielding 22 per cent. of silicon. With care these foods are admissible in the course of febrile diseases, when albumin is the constituent suffering most by the increased metabolism. I have often found a dietary largely composed of oatmeal and brown bread greatly promote the growth of hair, especially when the baldness was preceded by constipation and sluggish capillary circulation.

Those races of men who consume most meat are the most hirsute. Again, it is well known in the Zoological Gardens that carnivorous mammals, birds, and serpents keep their hair, feathers, or cuticle in bad condition unless fed with whole animals, and the egesta contain the cuticular appendages of their prey in a digested or partly digested state. It is also an old well-proved fact that a closely restricted diet—cheese, for example—soon produces in dogs a loss of hair.

In treating fevers a long course of non-nitrogenous diet may promote seborrhœa, which is so often a concomitant of the alopecia. When the special nutritive supply is secure the depressed condition of the vaso-motor and trophic nerves proceeding from the cervical ganglia to the scalp may be stimulated by blisters and liniments at the back of the neck. I have always found that friction of the scalp with pomades and lotions dislodges many hairs which might otherwise remain, and that cold or tepid baths with salt added and rough rubbing of the rest of the body will flush the capillaries of the affected part more effectually. Besides, when pomades are used, frequent washing becomes necessary, and this is conducive to baldness.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for August 14th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Aug. 8	1,515,301	763	74	..	..	..	..	..	8	25	19	8	3
Philadelphia, Pa.	July 25.	1,046,964	547	54	..	..	..	..	..	9	1	12	1	6
Philadelphia, Pa.	Aug. 1.	1,046,964	427	37	..	..	..	..	..	10	4	9	1	7
Boston, Mass	July 25.	448,477	281	31	..	..	..	..	..	4	..	..	..	....
Boston, Mass	Aug. 1.	448,477	276	32	..	..	..	..	..	1	..	2	..	....
Boston, Mass	Aug. 8.	448,477	209	23	..	..	..	..	..	3	..	2	..	2
San Francisco, Cal.	July 18.	298,997	....	....	..	..	..	..	..	9	..	1	..	....
San Francisco, Cal.	July 25.	298,997	126	17	..	..	..	..	..	5	..	1	..	....
San Francisco, Cal.	Aug. 1.	298,997	...	15	..	..	..	..	..	5	..	2	..	....
Cincinnati, Ohio	Aug. 7.	296,908	113	8	..	..	..	..	..	3	1	4	..	2
New Orleans, La.	July 18.	242,039	125	9	..	..	..	..	..	1	..	1	..	....
New Orleans, La.	July 25.	242,039	113	9	..	..	..	..	..	2	..	1	..	....
New Orleans, La.	Aug. 1.	242,039	128	21	..	..	..	..	..	3	..	..	..	....
Detroit, Mich.	Aug. 1.	205,876	82	....	..	..	..	..	..	1	2	2	1	....
Milwaukee, Wis.	Aug. 1.	204,468	98	5	..	..	..	..	..	1	2	7	1	3
Milwaukee, Wis.	Aug. 8.	264,468	118	10	..	..	..	..	..	..	1	10	1	7
Rochester, N. Y.	Aug. 8.	133,896	82	4	..	..	..	..	..	1	1	1	..	....
Kansas City, Mo.	Aug. 1.	132,716	35	4	..	..	..	..	..	5	..	..	..	....
Providence, R. I.	Aug. 8.	132,146	46	....	..	..	..	..	..	..	..	..	..	1
Toledo, Ohio	Aug. 7.	81,434	....	....	..	..	..	..	..	..	1	1	..	....
Richmond, Va.	Aug. 8.	81,388	38	3	..	..	..	..	..	1	..	1	..	....
Nashville, Tenn	Aug. 8.	76,168	39	....	..	..	..	..	..	2	..	..	..	3
Fall River, Mass.	Aug. 8.	74,398	47	3	..	..	..	..	..	..	..	..	..	....
Wilmington, Del.	Aug. 9.	61,437	35	2	..	..	..	..	..	..	..	1	..	1
Lynn, Mass.	Aug. 1.	55,727	28	5	..	..	..	..	..	1	1	1	..	1
Charleston, S. C.	Aug. 1.	54,955	40	1	..	..	..	..	..	..	..	..	2	....
Charleston, S. C.	Aug. 8.	54,955	32	5	..	..	..	..	..	..	..	..	..	....
Erie, Pa	Aug. 1.	40,634	12	....	..	..	..	..	..	..	1	..	..	....
Erie, Pa	Aug. 8.	40,634	17	....	..	..	..	..	..	1	..	..	..	....
Portland, Me.	Aug. 8.	36,425	21	....	..	..	..	..	..	..	..	..	.	....
Binghamton, N. Y.	Aug. 8.	35,005	12	1	..	..	..	..	..	1	..	..	..	....
Yonkers, N. Y.	Aug. 8.	32,033	14	....	..	..	..	..	..	1	..	..	..	....
Mobile, Ala.	Aug. 8.	31,076	14	4	..	..	..	..	..	..	..	..	..	....
Galveston, Texas	July 17.	29,084	15	3	..	..	..	..	..	..	..	..	..	....
Galveston, Texas	July 24.	29,084	17	1	..	.	..	..	..	1	..	..	..	....
Auburn, N. Y.	Aug. 8.	25,858	15	1	..	..	..	..	..	..	..	..	..	....
San Diego, Cal.	Aug. 1.	16,159	2	....	..	..	..	..	..	..	..	..	..	....
Rock Island, Ill.	Aug. 2.	13,634	5	....	..	..	..	..	..	..	..	1	..	....
Rock Island, Ill.	Aug. 9.	13,634	3	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.	Aug. 1.	11,750	7	1	..	..	..	..	..	4	..	..	..	....

Glycerin Suppositories.—"A short time ago," says the *Liverpool Medico-chirurgical Journal*, in its July issue, "glycerin came rapidly into repute as a laxative, and an enormous number of syringes were sold for injecting it into the rectum. Its indiscriminate use, often in very unsuitable cases, has led to its equally rapid decline in popular favor. Glycerin is a very deliquescent substance, which rapidly absorbs moisture from and stimulates the mucous membrane; it thus quickly leads to reflex peristaltic action, with evacuation of the rectum, and perhaps large bowel. Its very stimulating effect often leads to uncomfortable sensations in the rectum, especially if there be any hyperæmia of the parts, and hence its use should be strictly limited to those cases where there is a habitually sluggish action of the lower bowel. When there is any inflammatory action its use is strongly contra indicated. Any dilution with water lessens its hygroscopic character, and so diminishes its activity, hence it should be used as nearly pure as possible. On this account the activity of the glycerin is much diminished when administered in the form of suppositories, as commonly prepared with gelatin, because in their manufacture a certain proportion of water is necessary for its solvent action on the gelatin. Messrs. Parke, Davis, & Co. have overcome this objection by incorporating 95 per cent. of glycerin with 5 per cent. of stearin soap. Thus an excellent suppository is formed which is not very soluble, yet sufficiently so to make it quick and effective in action. The suppository is made in the form of a double cone, which renders its introduction into the rectum very easy. One is sufficient for an adult, and any required size may be cut off for a child. They should be kept in well-corked bottles to prevent the absorption of moisture from the atmosphere."

Alcohol an Aid to Digestion.—"Dr. Erchenberg, a German scientist of much note, has just published the result of his experiments with alcohol, and he is convinced that digestion is aided by moderate doses of it. The results obtained by Dr. Erchenberg from his experiments are interesting. A small amount of brandy or whisky shortens the time that food in general, whether animal or vegetable, or a mixture, remains in the stomach by half an hour. A similar, but not quite so marked an effect, is produced by a dose of diluted hydrochloric acid or mustard. Pepper and condurango diminish the time the food remains in the stomach by a quarter of an hour; while beer and an infusion of rhubarb has no effect. Dr. Erchenberg advises persons troubled with indigestion to partake of alcohol before meals."—*British and Colonial Druggist.*

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, August 29, 1891.

Original Communications.

A CLINICAL REPORT OF OPERATIVE SURGERY IN THE SERVICE OF DR. WILLIAM T. BULL, AT THE NEW YORK HOSPITAL,

During October and November, 1889, and from February to June, 1890.

By WILLIAM B. COLEY, M. D.,
LATE HOUSE SURGEON.

(*Concluded from vol. liii, page 709.*)

CLASS IV.—OPERATIONS UPON THE RECTUM AND ANUS.

The cases in this class may be summarized as follows:

(*a*) *Fistula in Ano.*—Fourteen cases. Tubercular origin probable in ten cases.

Treatment.—Free incision, curetting, and packing the wound with iodoform gauze. The bowels were kept closed for four or five days, at the end of which time a mild saline cathartic was given and the wound repacked. As soon as granulation had begun the wound was dressed daily with balsam of Peru, and occasionally stimulated with silver nitrate or zinc sulphate. The average time in the hospital was two weeks and a half.

(*b*) *Internal Hæmorrhoids.*—Ten cases. The method of treatment employed in all cases was partial excision and ligation.

(*c*) *Ischio-rectal Abscess.*—One case.

(*d*) *Ulcer of the Rectum.*—Two cases.

CLASS V.—GENITO-URINARY.

Total number of cases, fifty-seven. Recoveries, fifty-seven. Male patients, thirty-eight; female, nineteen.

A. Males. (*a*) *Urethrotomy for Stricture of the Urethra.*—Eighteen cases. Internal, nine; external and internal, nine. The internal method was employed in all cases where the stricture was situated in the anterior portion of the urethra. Where it was beyond from four and a half to five inches deep, the external incision was made and a catheter left in the bladder from twenty-four to forty-eight hours after the operation. The urethra was generally enlarged so as to easily allow of the passage of a No. 30 (French scale) steel sound.

The bladder was washed out with boric-acid solution at the close of the operation. The hæmorrhage was usually slight, but in one or two cases required the pressure from a steel sound which was allowed to remain in the urethra for a short time.

After-treatment.—The passage of sounds was begun on the fourth day and continued every second day until the patient left the hospital.

The reaction following operation was slight, and recovery followed in every case. The patients on whom the internal operation had been employed left the hospital at the end of a week or ten days, but they were advised to continue passing the sound.

(*b*) *Varicocele.*—Seven cases, seven recoveries. Method of operation, incision and ligation. In some cases where the mass of veins was very large a portion was resected, but in the ordinary cases simple incision and ligation was the method adopted. The veins were ligated separately, rarely *en masse.* The wound was packed with iodoform gauze. Primary union followed in every case, and the results were satisfactory. The average time in the hospital was eight days.

(*c*) *Congenital Phimosis.*—Six cases, six recoveries. Circumcision by the clamp method was done in all of the cases. Ether was given in most cases, but in some the operation was performed under cocaine anæsthesia.

(*d*) *Hydrocele.*—Two cases, two recoveries. Operation, Volkmann's. Recovery was rapid and there were no complications.

Miscellaneous cases, five; recoveries, five.

1. Tuberculosis of the testis; castration.
2. Epithelioma of the penis and inguinal glands; amputation of the penis.
3. Suprapubic lithotomy.
4. Suprapubic cystotomy for papilloma of the bladder.
5. Carcinoma of the testis; castration.

These cases are all of sufficient interest to deserve further mention. The histories, in brief, are as follows:

GENITO-URINARY.

Case I. *Tubercular Testis; Castration.*—T. N., thirty-eight years of age, was admitted October 29, 1889. He had had gonorrhœa twelve years before. Five years before he first noticed a slight enlargement of the right testis, with gradual loss of testicular sensation and dull pain in the cord. Two months and a half before, the skin broke down, forming an unhealthy ulcer with irregular, undermined edges. At the time of operation the testis was of twice the normal size, and the skin not adherent, except at the site of the ulcer, which was an inch and a half in diameter.

Operation, November 2, 1889.

Castration.—Speedy recovery followed. The pathologist's report showed the testis to be the seat of well-advanced tuberculosis.

Case II. *Epithelioma of the Penis and Inguinal Glands; Operation; Recovery.*—W. T., fifty-eight years of age, was admitted May 7, 1890. His general health had always been good and he had never had venereal disease. He had congenital phimosis. Two years before, a small wart-like growth appeared on the glans near the corona. This continued to grow until the time of the operation, when it was of the size of a hen's egg. The surface had ulcerated over a large area and the discharge was considerable. The edges were indurated, and the glands in both inguinal regions were enlarged.

Operation, May 7, 1890.—Amputation of the penis was performed three quarters of an inch from the symphysis pubis, and the inguinal glands were carefully dissected out. A catheter was allowed to remain in the bladder for the first twenty-four hours, after which time micturition was voluntary and painless. The examination by the pathologist showed both the penis and the inguinal glands to be epitheliomatous.

Case III. *Vesical Calculus; Suprapubic Lithotomy; Recovery.*—M. C., aged twenty-six, male, was admitted September 23, 1889. He had had symptoms of bladder irritation since childhood. Examination with a steel sound easily detected a calculus which was apparently about an inch in diameter.

Operation, September 25, 1889.—The urine was drawn off and twelve ounces of warm boric-acid solution were introduced into the bladder; an equal amount was used to distend the rectum. The usual vertical incision was made above the pubes.

The calculus was quickly found and easily extracted. A T-shaped rubber tube was left in the bladder for four days. The wound healed by granulation, and at the end of four weeks all the urine was passed by the urethra.

The calculus was two inches in its long and three quarters of an inch in its short diameters, and consisted of calcium oxalate and earthy phosphates.

CASE IV. *Papilloma of the Bladder; Suprapubic Cystotomy; Recovery; Death Two Months Later.*—P. M., aged forty-eight, male, was admitted November 16, 1889. Four weeks before, he had begun to have pain in the region of the bladder, accompanied by blood in the urine and increased frequency in micturition.

The urine contained a very large amount of blood, and at the time of operation it coagulated on standing.

Operation, November 16, 1889, Suprapubic Cystotomy.—The bladder was opened sufficiently to allow of digital examination.

Two or three cauliflower-like masses from an inch to two inches in diameter were found attached to the mucous membrane. These were removed with scissors and Volkmann's spoon. The hæmorrhage, not profuse, was easily controlled.

The T-shaped rubber tube was left in the bladder eight days. The wound healed satisfactorily, but his general condition grew steadily worse.

Mild delirium developed in the third week. The temperature, respiration, and pulse remained normal throughout.

Physical examination showed the liver dullness markedly diminished and the lungs emphysematous. Although there was no longer hæmorrhage, he continued to grow weaker.

He was taken from the hospital a month after operation, against advice, and he died a month later.

There was no autopsy.

The pathologist's report showed the tumor to be a papilloma of the bladder.

CASE V. *Carcinoma of the Testicle, complicated with Adherent Inguinal Hernia; Operation; Recovery; Rapid Recurrence.*—O. M., aged thirty-seven, born in the United States. His family history was free from malignant disease; he was admitted May 26, 1890. He had always been in good health and gave no evidence of specific history. Eighteen years ago he first noticed that the left testicle was larger than the right. The enlargement slowly but steadily increased up to three months previous to his admission, when it began to increase very rapidly. There was no pain until the last year, but intermittent shooting pain increasing in severity since. There was considerable loss of flesh (fifty pounds the last six years), but he was able to work until a month before his admission.

Examination showed the left scrotum occupied by a tumor, ovoid in shape, 7 × 4½ inches, and not extending into the inguinal canal. The skin was tense and the scrotal veins were enlarged. The consistence varied greatly, the tumor being soft and semi-fluctuating in portions and hard in others. The cord was slightly enlarged and tender. The inguinal glands were distinctly felt, but no tenderness was present. Rectal examination was negative.

Operation, May 27, 1890.—The tumor proved to be a neoplasm of the testicle with a small omental hernia in the upper portion. The omentum was firmly adherent to the tumor. The cord and omentum were ligated separately, but the omental vessels as well as the spermatic vessels were abnormally large and the ligature slipped after the stump had been sutured to the abdominal cavity, causing profuse hæmorrhage. The incision was carried upward, the abdomen was opened up, and the bleeding vessels were secured. A glass tube was left in the wound extending into the abdominal cavity to guard against further hæmorrhage, and a large iodoform drain was left in the lower end of the wound. On the third day there was some fresh hæmorrhage, but not enough to require opening up the abdominal wound. The glass tube was removed on the fifth day. The pulse was 120 to 144 during the first five days, but from that time it gradually returned to normal. The wound healed partly by granulation. At the time of his discharge, June 30th, a hard mass was distinctly felt in the left iliac region.

About six months later a large growth had appeared in the abdomen too extensive for removal.

B. FEMALE.—Fourteen cases. (*a*) Laceration of the cervix uteri, four cases; laceration of the perinæum, two cases; prolapse of the uterus, vaginal hysterectomy, one case; carcinoma of the vaginal wall, one case; epithelioma of the vulva, one case; ulceration of the bladder, cystotomy, one case; epithelioma of the cervix uteri, one case; fungous endometritis, one case; recto-vaginal fistula, one case; carcinoma of the uterus (fundus and cervix), one case; fibroid of the uterus, submucous, one case.

Laceration of the Cervix (four cases).—Emmet's operation was employed, silver-wire sutures being used. The sutures were removed on the tenth day. Results all satisfactory.

Laceration of the Perinæum (two cases).—Tait's operation. Sutures of silkworm gut. Sutures removed at the end of two weeks. Good union.

CASE I. *Prolapse of the Uterus; Vaginal Hysterectomy; Recovery.*—E. W., aged forty-six, admitted November, 1889. Her general health was good. She had had six children, the last five years ago, since which time there had been a constant tendency to prolapse of the womb. She was unable to obtain relief from mechanical treatment, and her condition was gradually becoming more and more troublesome.

Examination showed the cervix low down, at the entrance to the vagina, and an ulcer of the size of a silver half-dollar upon the posterior lip. The uterine cavity was five inches and a half deep. An extensive laceration of the perinæum was likewise present.

Operation, November 18, 1889. Vaginal Hysterectomy.—Ether. The cervix was grasped with a volsella and drawn down. A sound was passed into the bladder and the cervix carefully dissected anteriorly, care being taken not to wound the bladder. Douglas's *cul-de-sac* was then opened and the peritonæum in front of the uterus and the broad ligament on either side were transfixed and ligatured with heavy silk, the ends of the ligatures being left long, so as to project from the vagina. The uterus was then cut free and removed. The hæmorrhage was slight and easily controlled; the vagina was packed with iodoform gauze.

Subsequent Progress.—She suffered only moderate shock from the operation. She was catheterized the first twenty-four hours and then passed urine voluntarily. The packing was partially removed the second day and fresh iodoform gauze was introduced. At the end of the first week she was given a warm douche of carbolic acid (1 to 80), and the packing was discontinued at the end of twelve days. She was up and dressed at the end of three weeks. Discharged cured, December 19, 1889.

CASE II. *Carcinoma of the Vaginal Wall; Operation; Recovery.*—A. C., aged twenty-one, admitted May 16, 1890, unmarried and never pregnant. Her general health had been good until two months previous to admission. She then began to have pain in the back, and a little later a foul-smelling, bloody discharge appeared in the vagina. This continued and became more profuse and the pain increased.

Examination showed the whole vagina filled with a soft granular mass, friable and moderately vascular. The cervix could not be felt. There was an abundant foul discharge from the vagina.

Operation, May 21, 1890.—Ether. Sims's speculum was with difficulty introduced into the vagina. The vagina was found almost entirely filled with a fungous mass attached to the posterior and left lateral walls high up, but not in any way involving the cervix. The mass was removed with curved scissors and the base of attachment thoroughly scraped with a Volkmann spoon. The hæmorrhage was slight and easily controlled with an iodoform tampon.

Subsequent Progress.—The gauze was removed on the third day; a 1-to-80 carbolic-acid douche was given and fresh packing introduced. On the tenth day the base of the wound had almost entirely healed. There was no pain and scarcely any discharge.

The pathologist's examination showed the growth to be epithelioma.

Case III. *Endometritis; Curetting; Recovery.*—E. L., aged twenty-five, married, admitted December 27, 1890. She had had one child, two years and a half ago, with instrumental delivery and bad laceration of the cervix. A profuse leucorrhœal discharge had existed since.

Examination showed a transverse bilateral laceration of the cervix, together with an erosion of the anterior lip. The uterine cavity was of normal depth.

Operation, December 27, 1890.—Ether. The uterus was curetted with a sharp spoon, the cervix having been previously dilated. The discharge was much diminished, and on January 9th trachelorrhaphy was performed (Emmet's operation). The silver-wire sutures were removed on the ninth day. She was discharged, improved, January 22, 1890.

Case IV. *Rectovaginal Fistula; Operation; Recovery.*—A. M., thirty-seven years old, married, health good; admitted February 24, 1890. About three years and a half before, the patient had an abscess in the anterior wall of the rectum, which broke into the vagina and left a permanent opening, allowing of the escape of fæces.

Examination.—In the posterior vaginal wall about an inch from the fourchette there was a sinus about three eighths of an inch in diameter leading directly into the rectum. The incisions were made precisely as in Tait's operation for lacerated perinæum. The sinus was cut out and the opening into the rectum closed with catgut sutures. The remaining sutures were of silkworm gut and applied in the usual way.

The patient was catheterized the first week, the legs were kept together, and on the sixteenth day the sutures were removed and the union was found complete. On the third week before she left the hospital the rectum was distended with fluid and the closure of the fistula was found to be perfect.

Case V. *Carcinoma of the Uterus; Curetting.*—J. G., aged fifty, widow, and family history good. Admitted April 23, 1890. She had had no children. Her general health had been good until six months previous to admission. The menopause had occurred three years before.

About six months ago (November, 1880) she began to have a dark-colored discharge from the vagina, and two months later she had attacks of pain in the left iliac region, at first dull in character, but afterward very sharp and severe. There had been no loss of flesh or strength. Examination showed an ulcer covering the entire surface of the cervix. The uterus was firmly fixed, and several hard nodular masses could be felt in the broad ligament.

April 27th.—She had an attack of excruciating pain, quickly followed by the discharge from the vagina of several drachms of purulent matter. The pain required large doses of morphine to control it. There was acute tenderness over the lower portion of the abdomen, most marked on the left side. The temperature was only slightly increased. The discharge lasted about two to three hours, and the tenderness quickly disappeared.

Operation, April 30, 1890.—Ether. Examination under ether showed that the cervix had almost entirely disappeared. The uterus was very firmly fixed, and the broad ligaments showed evidence of such extensive invasion that extirpation was not to be considered. The cervix and uterus were thoroughly curetted and the vagina was packed with iodoform gauze. The operation was followed by slight improvement, but the pain continued moderately severe. Further operation not advised, and the patient left the hospital, May 7, 1890.

Case VI. *Carcinoma of the Uterus; Curetting; Marked Temporary Improvement.*—E. C., aged fifty-two, married, admitted November 30, 1889. Family history: Five relatives of the patient had died of carcinoma. She had had three miscarriages, the last twenty-six years previous to admission. Two years ago she began to have severe uterine hæmorrhage. This recurred at intervals, and of late became more profuse and occurred at shorter intervals. There had been some pain in the region of the uterus for several months. All the symptoms were progressive, and there was considerable loss of flesh and strength. Examination showed the cervix entirely gone and in its place a fungous mass, the surface of which was broken down and ulcerated.

Operation, November 30, 1889.—Ether. Careful examination showed the growth to involve the bladder so extensively that hysterectomy was deemed unwise. As much of the tumor as possible was removed with a sharp curette, and the vagina was packed with iodoform gauze. The patient was considerably improved by the palliative operation. The discharge very much lessened, and she left the hospital at the end of two weeks. She is still living (June, 1891), having had one curetting since the one described.

Case VII. *Ulceration of the Bladder; Cystotomy; Recovery.*—C. H., aged twenty-eight, female, admitted May 10, 1890. She had had symptoms of severe irritation of the bladder during eight months previous to admission. There were blood and pus in the urine, and occasionally there was a small amount of sand-like material. There was very severe pain during micturition, and lasting some time after. Examination with a sound was very painful and unsatisfactory. Thorough lavage treatment had been tried previous to her entrance into the hospital.

Operation, May 21, 1890.—An incision large enough to admit the index finger was made in the vesico-vaginal septum, and the bladder carefully explored. A portion of the mucous membrane was covered with fine sand-like deposits of calcareous matter, and in one place there was a small area of ulceration. The calcareous matter was scraped away with a sharp spoon, and the bladder thoroughly irrigated with warm boric-acid solution. The urethra was then dilated with a No. 40 steel sound. The wound in the bladder healed very promptly, but the pain was not much relieved by the operation. The urine improved, and the frequency of micturition diminished. She was discharged, improved, July 7, 1890.

Case VIII. *Epithelioma of the Vulva; Excision; Recovery.*—H. M., aged fifty-two, admitted May 21, 1890, married. Her general health was always good. Her family history was negative. About a year and a half ago she first noticed a small ulcer on the left labium. This had very slowly increased in size, but had never been painful. Examination showed on the left labium minus a superficial ulcer about an inch in diameter. The surface was covered with grayish, unhealthy granulations, but the edges were neither indurated nor undermined. There were no enlarged glands present. A small section was removed for microscopical examination, and was pronounced epithelioma by the pathologist.

Operation, May 27, 1890.—An elliptical incision was made, including the ulcer, about a quarter of an inch of healthy tissue on either side, and the mucous membrane. Primary union and prompt recovery followed.

UPPER EXTREMITIES.

Fractures and Dislocations.—Ten cases; ten recoveries.

Case I. *Compound Comminuted Fracture of the Radius; Rupture of the Superficial Flexor Muscles; Suture; Recovery, with Restoration of Function.*—J. H., aged forty-seven, male, was admitted April 26, 1890. A heavy bar of iron had fallen upon his left forearm, causing a large lacerated wound just below the middle, and fracturing the radius in three places. The superficial flexor muscles were nearly severed. The wound was very thoroughly cleansed with 1-to-1,000 solution of bichloride of mercury, and the muscles were sutured with catgut. The arm was put up in an antiseptic dressing with a plaster splint externally. There was no reaction whatever, and the wound was not dressed until the eighth day. It had entirely healed by primary union. The patient was seen six months later, and he had almost entirely regained the use of the flexor muscles.

Case II. *Amputation of the Arm for Crush of the Elbow.*—B. F., aged thirty-two, male, admitted May 21, 1890. His right elbow had been caught between a heavy iron tank and a beam, causing a compound fracture into the elbow joint, with severe crushing of the soft parts above and below. The hand was cold, and neither radial nor ulnar artery could be felt.

Operation two hours after the injury. Amputation at the middle of the arm. Two small rubber drainage-tubes were used, and taken out on the third day. Primary union followed.

Case III. *Amputation of the Forearm for Traumatism.*—J. H., aged thirty-three, male, entered the hospital May 27, 1890. His right hand and forearm had just been caught in a planing machine. The hand and lower half of the forearm were absent, and the muscles were lacerated and contused for some distance above, and covered with sawdust and shavings. The hæmorrhage had nearly ceased. Amputation was performed three inches and a half below the elbow, eighteen hours after the injury. Primary union followed.

Case IV. *Wiring of an Ununited Fracture of the Clavicle.*—J. G., aged twenty-nine, male, admitted September 12, 1889. The patient, a strong, well-developed man, had fallen from a truck June 7, 1889, striking upon his right shoulder and fracturing the clavicle at about the middle point. The arm was immobilized for four weeks, but when the apparatus was removed no union had taken place. On his entrance into the hospital, examination showed an overlapping of an inch and a half, but, on drawing the shoulder firmly back, this could be reduced to half an inch. Abduction and rotation were entirely lost, and only slight backward and forward motion remained.

Operation, September 16, 1890.—An incision three inches long was made over the middle of the clavicle and the ends of the fragments were exposed. An adventitious bursa was found where the ends overlapped. The two ends were made even with a bone forceps, and after half an inch had been removed they were easily brought into apposition, and then held in place by means of a strong silver-wire suture. A small drainage-tube was left in the wound. He left the hospital October 14th, the bone having united firmly.

Case V. *Amputation at the Wrist for a Crush of the Hand.*—M. H., aged twenty-four, female, admitted April 8, 1890. The patient's left hand had been drawn between the rollers of a steam mangle, and the whole hand from the fingers to the middle of the metacarpal bones was flattened and discolored. The hand was cold and the circulation was almost entirely absent. The patient was given ether and very free incisions were made over the palmar and dorsal surfaces, allowing of the escape of a large amount of dark bloody serum. The hand was then put up in a heavy iodoform dressing, and constant irrigation with 1-to-5,000 bichloride-of-mercury solution kept up for eight days. At the end of that time a well-defined line of demarkation had formed.

Second Operation, April 19th.—The tissues of the dorsal side of the hand were dead and all the fingers gangrenous, but incisions showed considerable vitality still in the palm. All the fingers were removed at the metacarpo-phalangeal articulation. There was no inflammatory reaction at any time. At the end of a week the dorsal slough had almost entirely separated, leaving a clean granulating ulcer, which it was intended to cover with skin grafts, but the patient preferred losing the rest of the hand to the ne-

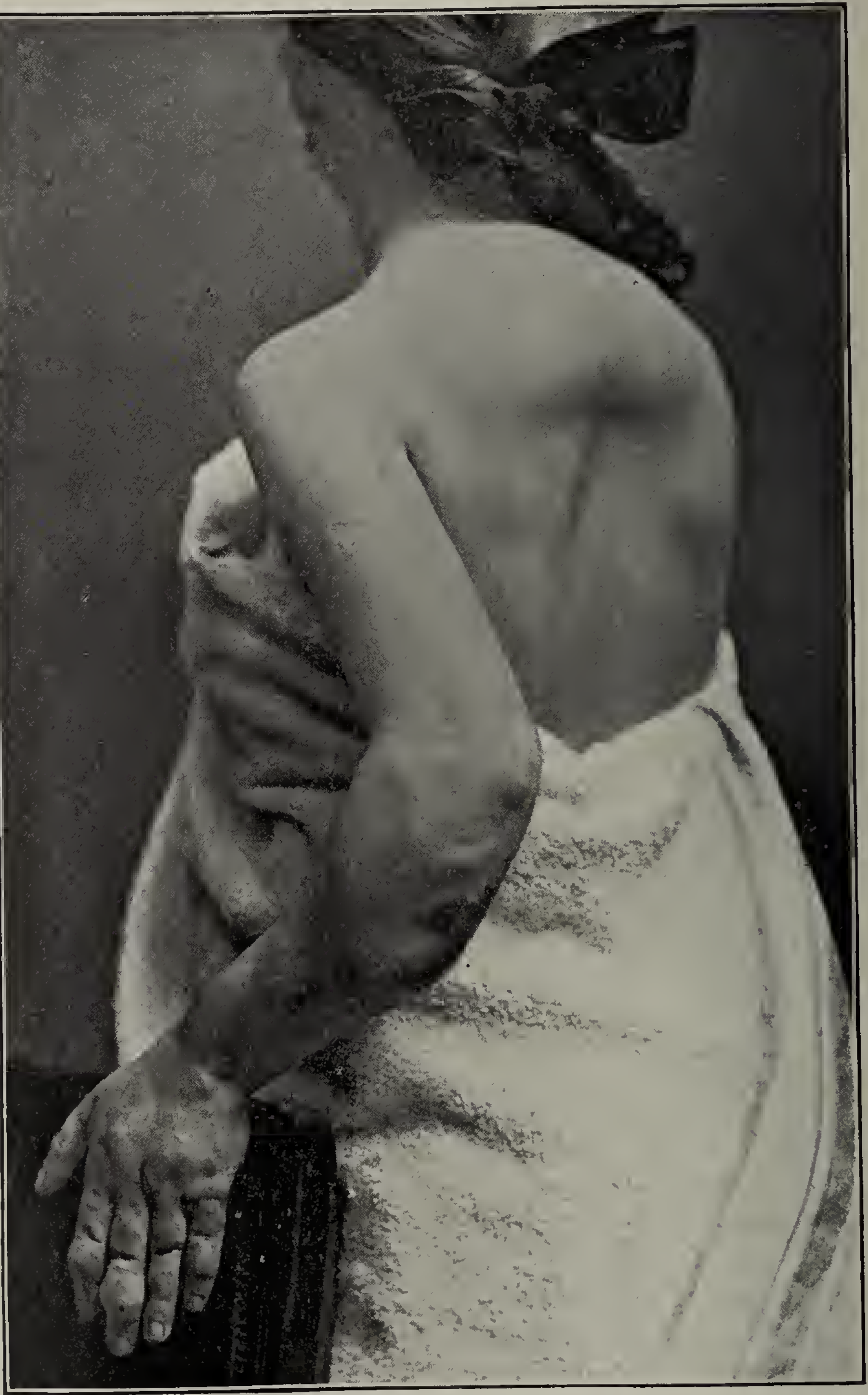

Fig. 1.—Congenital angeioma of left forearm and fingers. Lipogenous angeioma of back.

cessary delay in healing, and accordingly amputation at the wrist was performed on May 7, 1890. She made a good recovery.

CASE VI. *Excision of the Elbow for Ankylosis.*—B. P., aged nineteen, male, admitted October 22, 1889. He was well developed and his general health was excellent. A year previous to admission he had fallen upon the ice, striking upon his right elbow. He was at first told that his arm was broken, and then that it was dislocated backward at the elbow. It was put up in a splint at less than a right angle and left for four weeks. When the splint was taken off, motion of the joint, particularly flexion, became more and more painful, and the arm was kept extended until mobility was almost entirely lost. At the time of his entrance into the hospital there was almost complete ankylosis, with evident signs of an old dislocation of the ulna and radius backward. There was no tenderness, and only slight atrophy of muscles.

Operation, October 30, 1889.—An incision three inches long was made over the elbow joint posteriorly, just to the inside of the external condyle. The head of the radius and the olecranon process of the ulna were removed with the chisel. They were both displaced backward. The articular end of the humerus having been freed, there were found unmistakable signs of an old T-shaped fracture into the joint. The condyles were enlarged and separated, and there had been a considerable formation of new bone between. Two rubber drainage-tubes were left in the wound and the arm was put up at right angles with a heavy antiseptic dressing, with a plaster splint externally.

Subsequent Treatment.—The wound was dressed at the end of twenty-four hours on account of a bloody discharge. The second dressing was on the seventh day. There was no discharge and the wound healed by first intention. At the end of three weeks the arm was put up at an angle of 70°, and three weeks later passive motion was begun. He was seen several months after the operation and then had a very useful joint.

CASE VII. *Dislocation at a Metacarpo-phalangeal Articulation; Operation.*—P. B., aged twenty-four, male, admitted October 15, 1889. The capsular ligament was so tightly "button-holed" over the head of the metacarpal bone that reduction without incision was impossible. A small incision was made and the ligament grasped with a tenaculum, and reduction was easily made.

CASE VIII. *Compound Comminuted Fracture of Humerus; Operation; Subsequent Wiring; Recovery.*

(*b*) NEOPLASMS.

CASE I. *Congenital Angeiomata of the Left Forearm and Fingers, with a Large Lipogenous Angeioma of Back; Operation; Recovery.*—A. A., nineteen years of age, female, admitted April 2, 1890. Her general health had always been good. The midscapular region was occupied by a tumor of the size of a cocoa-nut, regular in outline, and soft and almost fluctuating in consistence. The skin was perfectly normal and adherent to the tumor. On the extensor surface of the left forearm was a tumor of about the size of a hen's egg. The skin was of a bluish color and the tumor was attached to the fascia of the muscles and plainly angeiomatous in character. Upon the dorsal side of the first, second, and fourth fingers of the left hand, over the middle phalanges, were small nodes of about the size of a small chestnut. These were firmer in consistence than either of the other tumors, and were attached to both the skin and the deeper parts.

Operation, April 9, 1890.—The tumor of the back was removed by a large crucial incision. The tumor was mostly composed of fat, but was much more vascular than an ordinary lipoma. The tumors of the fingers could not be enucleated and were very firmly adherent to the skin and tendons. The hæmorrhage was profuse. The wounds healed promptly and she left the hospital April 29th, to return for an operation upon the arm.

CASE II. *Epithelioma of the Arm (Recurrent); Operation; Recovery.*—W. L., aged forty-two, male; admitted September 14, 1889. Two years previously a small tumor had been removed from between the thumb and index finger of the left hand. Four weeks before admission a small swelling appeared on the inner side of the left elbow. There was slight pain.

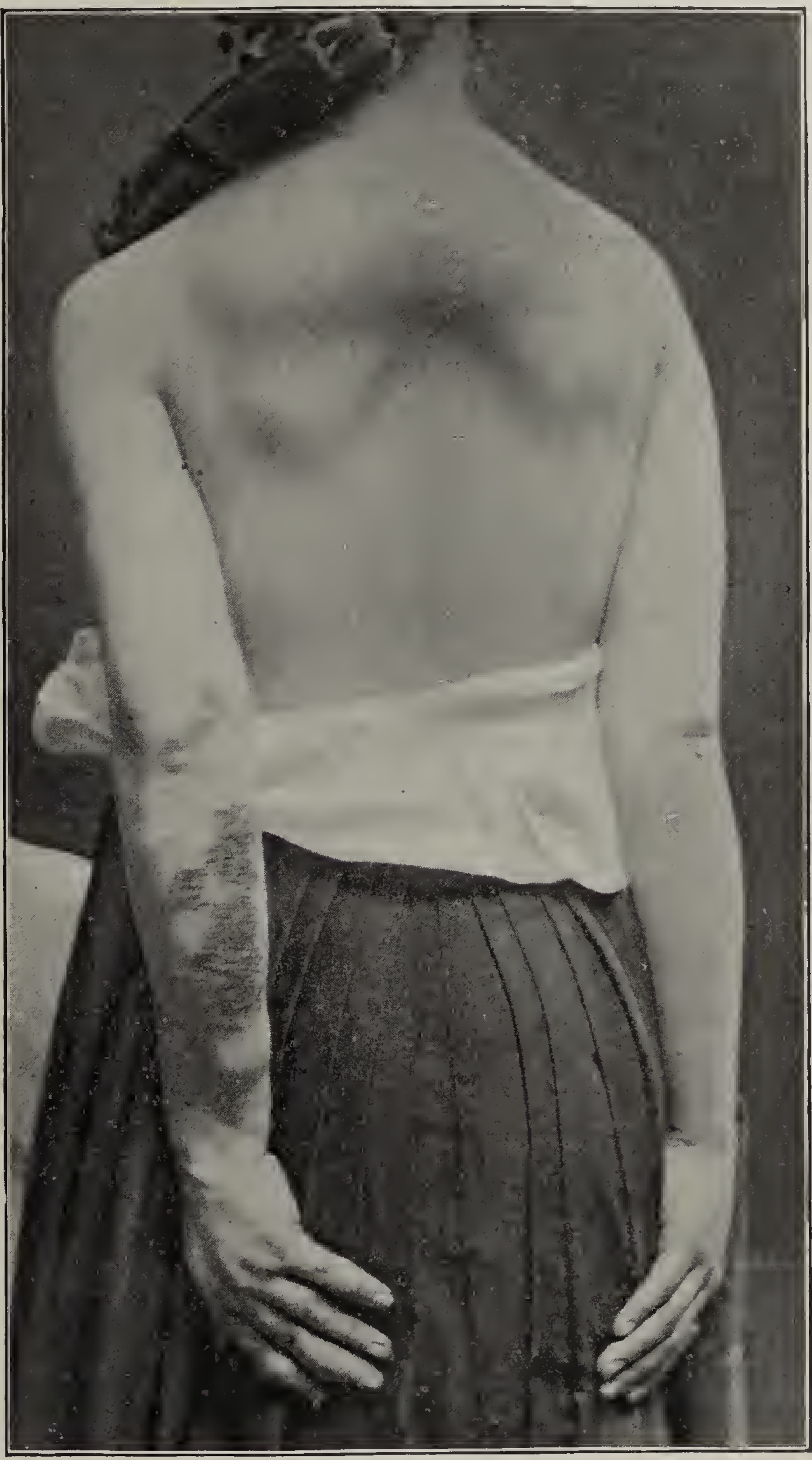

FIG. 2 - The same.

Operation, September 14, 1889.—The tumor was of about the size of a hen's egg and closely adherent to the triceps muscle. It was carefully dissected out, and prompt healing of the wound followed.

The pathologist's report showed the tumor to be epithelioma.

(c) TUBERCULAR DISEASE.

Case I. *Excision of the Elbow for Tubercular Arthritis.*—W. P., aged thirty-eight, female, French; admitted May 3, 1890. No tubercular family or previous personal history. Two years ago she injured her left elbow. Since that time there had been a slight loss of mobility. During the two months previous the pain and swelling had markedly increased, and she had been unable to use the joint. At the time of her entrance into the hospital examination showed marked swelling of left elbow joint, great tenderness on pressure, and the forearm fixed at an angle of 120°, with considerable limitation of pronation and supination. There was one inch enlargement at the olecranon process and one inch atrophy at the middle of the arm. Her general health was good, and there was no evidence of tubercular disease in the lungs.

Operation, May 7, 1890.—Ether. An incision four inches long was made over the olecranon process, and an abscess cavity, which communicated with the joint and was filled with broken-down caseous pus, was opened. The articular ends of both radius and ulna, as well as the lower end of the humerus, were so badly diseased that excision was performed. The arm was put up at right angles with a dry sterilized dressing, and immobilized by means of plaster of Paris externally. The wound healed by perfect primary union, and the result was very good. Passive motion was begun at the end of a month.

Case II. *Tubercular Arthritis of the Elbow; Amputation; Recovery.*—L. M., aged sixty, male. His family history was negative. He had had signs of tubercular arthritis of the elbow for four years. Two months ago—July, 1889—resection of the joint was performed at the New York Hospital. The result was unsatisfactory and amputation was advised and performed September 7, 1889. The section of the humerus was at the junction of the middle and lower thirds. The lower end of the humerus was thickened and diseased, and the soft parts contained several sinuses leading to bare bone. Primary union followed the operation.

Case III. *Tubercular Osteitis of the Clavicle simulating Malignant Disease; Operation; Recovery.*—J. L., aged forty-three, male; admitted October 14, 1889. There was no tubercular family or previous personal history. There was a very doubtful specific history. Three months before, while picking up a heavy weight, he felt a sudden pain in the sternal end of the left clavicle. He soon after noticed a smooth, hard swelling in this region. He thought it had increased slowly in size. The pain nearly disappeared and the functions of the arm remained good until the day previous to his entrance into the hospital, when, in the act of putting on his coat, he felt something give way in the region of the swelling, and he was unable to move his arm afterward.

Examination showed a hard, fusiform swelling over the sternal end of the left clavicle of about the size of a small hen's egg. The skin over it was normal and not adherent. There was no tenderness on pressure.

Operation, October 26, 1889.—Ether. An incision two inches and a half long was made over the swelling. A small area of cheesy degeneration was found in the clavicle, and a small portion of necrosed bone was entirely separated from the living bone. The cavity was thoroughly curetted and packed with iodoform gauze. The wound healed slowly, but a second curetting was done a few months later.

Case IV. *Amputation of the Arm for Tubercular Osteitis.*—V. T., aged twenty-two, male; born in Italy. His family history was obscure. He had fallen and injured the right elbow seven years before. The arm became swollen and painful and the functions of the elbow joint more and more impaired. Sinuses appeared and three years later the joint was resected at Charity Hospital. The sinuses persisted and discharged freely. He entered the hospital November 2, 1889. The lower portion of the arm was swollen and reddened, and contained six sinuses varying in size and communicating with bare bone. On the posterior portion, near the elbow, was a large sloughing ulcer of the size of a silver dollar, with deeply undermined edges.

Operation, November 2, 1889.—The arm was amputated just above the middle. The drainage-tubes were taken out on the third day. The wound healed by first intention.

Case V. *Tenosynovitis of the Extensor Tendons of the Hand (Tubercular); Operation; Incision and Curetting; Recovery.*

Case VI. *Tenosynovitis of the Flexor Tendon of the Index Finger (Tubercular); Incision and Dissecting Out of the Tubercular Sac; Recovery.*

Cases VII and VIII. *Caries of the Radius; Incision and Removal of Diseased Bone; Recovery.*

Case IX. *Caries of the Ankle; Incision and Curetting; Recovery.*

(d) INFLAMMATORY.

Case I. *Osteitis of the Humerus; Drilling; Partial Section of the Musculo-spiral Nerve; Immediate Suture.*—J. O. C., forty-five years of age; admitted October 14, 1889. Family history good. General health always good and no specific history. Five years previous to admission, without apparent cause, he began to have severe pain in the outer portion of the right arm. The pain was deep-seated, and very quickly the arm began to swell. The swelling gradually extended downward until the upper portion of the forearm became involved and motion at the elbow was greatly limited and very painful. The swelling appeared to be deep-seated and at no time did the skin become reddened. This condition remained about two or three weeks, and then the swelling and induration gradually disappeared, the arm regaining its normal appearance and functions at the end of five or six weeks. A similar attack to the one just described recurred once every year up to the time of his entrance into the hospital. On two or three occasions a soft spot appeared in the swollen area and subsequently broke, discharging for a short time a purulent fluid. The last attack began August 18, 1889, and at the time of his entrance into the hospital he said it was just beginning to subside. Examination showed the right arm and the upper portion of the forearm symmetrically enlarged, the forearm resting in a semiflexed position and allowing of only a limited amount of motion (about 30°). The skin was not reddened and only slight tenderness was present. The outlines of the muscles were distinct, and over the lower two thirds of the arm there was well-marked induration of the soft parts, giving almost a bony feel.

He remained in the hospital a week before an operation was performed. The induration slowly diminished and muscular power increased.

Operation, October 21, 1889.—Ether. An incision four inches long was made on the outer side of the right arm and carried down to the bone. On raising the periosteum, several small scales of new bone were brought into view. The humerus at the middle seemed normal, but the lower third was enlarged, very much harder than normal bone, and almost like ivory in appearance. Twelve small holes were made in the humerus by means of a drill and the wound was packed with iodoform gauze. During the operation the musculo-spiral nerve was partially cut, it being imbedded in cicatricial tissue. The sheath was sutured with catgut. He had complete musculo-spiral paralysis, which persisted for several weeks. The wound healed promptly by granulation. When he left the hospital (December 24th) the paralysis was slowly but steadily diminishing under treatment by electricity.

CASE II. *Cicatricial Contraction of a Finger.*

CASE III. *Syphilitic Necrosis of the Scapula.*

CASE IV. *Cellulitis of the Hand.*

CASE VI. *Paronychia of the Index Finger simulating Epithelioma; Amputation of the Finger.*

LOWER EXTREMITIES.

(*a*) FRACTURES AND DISLOCATIONS.

CASE I. *Resection of the Femur for Malunion; Recovery.*—H. H., male, aged thirty, admitted September 24, 1889. He had received a fracture of the left femur three months previously by direct violence. At the time of admission into the hospital there was two inches and a half of shortening of the left leg. Near the junction of the middle and lower thirds of the left femur were well-marked signs of an old fracture, with considerable deformity and evident overlapping of the fragments. The union was not perfectly firm, and he was unable to walk without the aid of crutches.

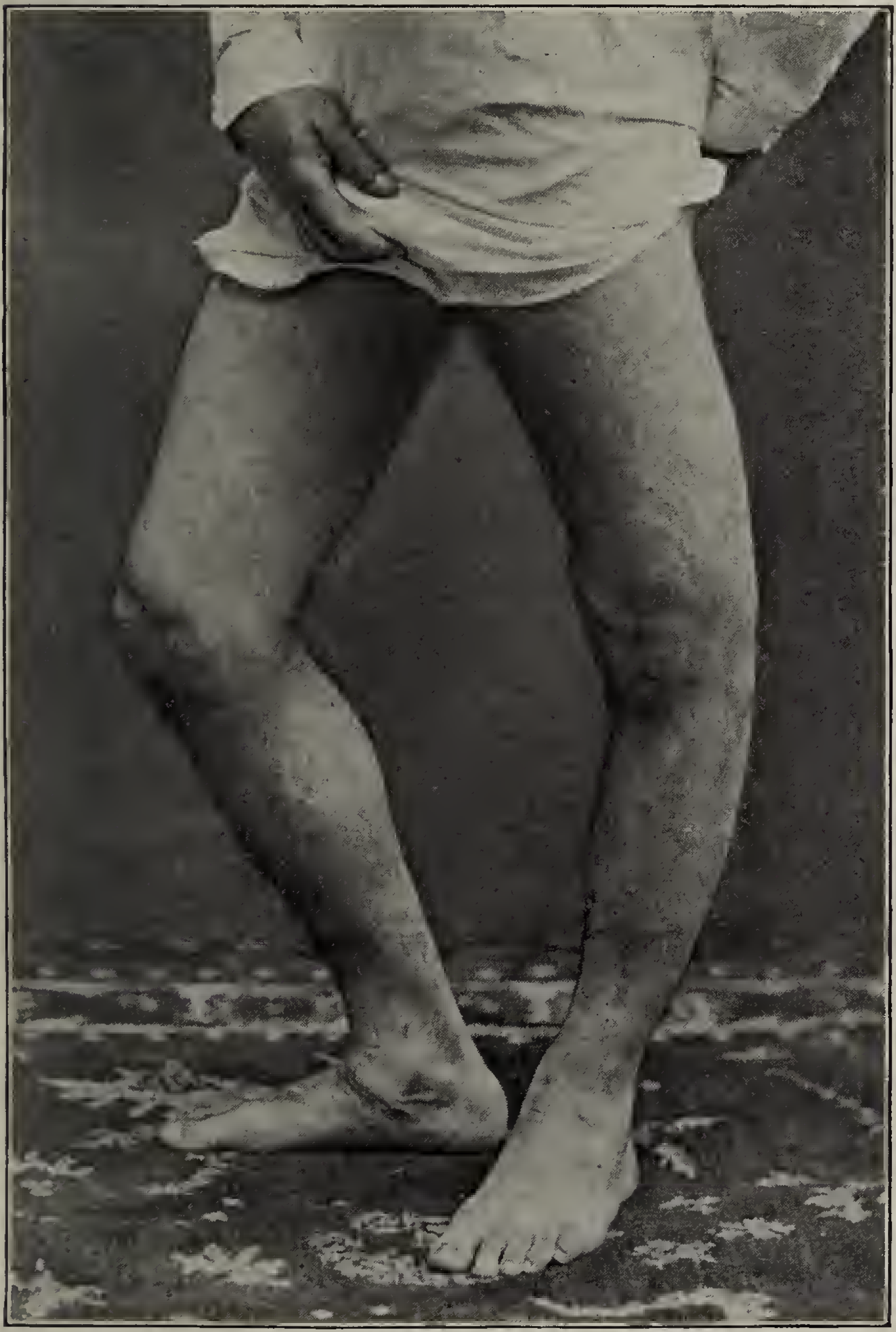

FIG. 3.—Malunion of femur (Case I, before operation).

Operation, October 5, 1889.—Ether. An incision four inches long was made over the outer aspect of the thigh, in the region of the fracture. On exposing the bone the two fragments were found overlapping about two inches and a half, the lower fragment projecting upward and outward, and the upper *vice versa.* There had been a considerable growth of new bone about the ends of the fragments, which held these fragments together with moderate firmness. The new bone was chiseled away sufficiently to allow of a forcible separation of the fragments, but the ends could not be brought into apposition until about an inch and a half to two inches had been removed from each. Good position having been secured, the leg and thigh and pelvis were immobilized by means of a heavy plaster splint. The wound was not dressed until the end of three weeks, and then through a fenestra cut in the splint. It was found nearly healed.

November 22d.—A new splint was applied. The position was good, and union fairly firm. He went about on crutches, and on January 2d the splint was discontinued, with the exception of two short side-splints, fitted to the thigh, which he wore during the day and left off at night. There was two inches of shortening, but the union was getting firmer every day.

CASE II. *Osteoclasty for Malunion of the Femur.*—R. C., aged three, female, admitted September 28, 1889, suffering from fracture of the left femur at the junction of the middle and upper thirds. She was treated by vertical extension for ten days, and then a plaster splint from foot to pelvis was applied. The splint was removed on November 12th, and there was found considerable anterior bowing and half an inch shortening. She was given ether on November 14th, and the femur refractured, straightened, and put up in coaptation splints, and a plaster spica and light extension were applied. The splint was taken off on December 5th. There was firm union. There was no deformity and only an eighth of an inch shortening. Discharged cured December 7, 1890.

CASE III. *Compound Fracture of the Os Calcis with Rupture of the Tendo Achillis; Suture.*—J. G., male, aged forty-five, admitted April 24, 1890, with the following history: While he was standing in an elevator his right foot was caught between the elevator and the shaft and badly crushed. Examination showed a large lacerated wound over the lower portion of the right tendo Achillis, with parts of ruptured tendon projecting from the wound. Ether was given, and an operation at once performed by Dr. Schouffler. A longitudinal incision three inches long was made over the os calcis, and the lower portion of the ruptured tendon was found attached to a fragment of the os calcis about three quarters of an inch in diameter. This, with several smaller pieces, was removed, and the upper end of the tendon brought down and sutured to the soft parts about the base of the os calcis and to the small portion of tendon still attached to that bone. The foot was put up in a plaster splint in a position of extreme flexion. A portion of the tendo Achillis sloughed off and somewhat delayed recovery. The result was good.

CASE IV. *Osteoclasty for Malunion of the Femur.*—F. E., aged four, admitted June 6, 1890. He had fallen four months previously, causing a fracture of the right femur at about the middle point. At the time of his admission the union was fairly firm, but there was well-marked deformity at the site of the old fracture, the two fragments forming an angle of 150°. There was a shortening of an inch and a half.

Operation, June 6, 1890.—Ether was given, and the femur refractured at the same point as the original break, and then the fragments were brought into apposition by traction. Coaptation splints were applied to the thigh and the leg was put up in Buck's extension apparatus, with five pounds weight; the extension was left on for two weeks and then taken off and a plaster-of-Paris spica applied. This was removed at the end of ten days. There was good union, with no deformity, and only an eighth of an inch shortening.

(*b*) NEOPLASMS.

CASE I. *Sarcoma of the Lower End of the Femur; Amputation of Thigh.*—C. F., aged twenty-nine, male, admitted November 26, 1889. General health good until recently. About a year previous to his admission he noticed a slight swelling of the right knee, and complete flexion became more and more painful. There was no history of traumatism. The swelling increased in size, slowly at first, but more rapidly for the last five months. He was unable to walk without crutches, and examination showed the right leg partially flexed (angle 150°), the knee greatly enlarged, and the bony outlines lost; the skin abnormally dark and the superficial veins enlarged. The bony enlargement seemed chiefly confined to the lower end of the femur, and the internal condyle was more prominent than the external and showed areas of softening. It was tender on pressure and gave a crackling sensation. The circumference at mid-patella showed an enlargement of two inches. There was slight atrophy of the muscles of the thigh and there was slight glandular enlargement in the groin.

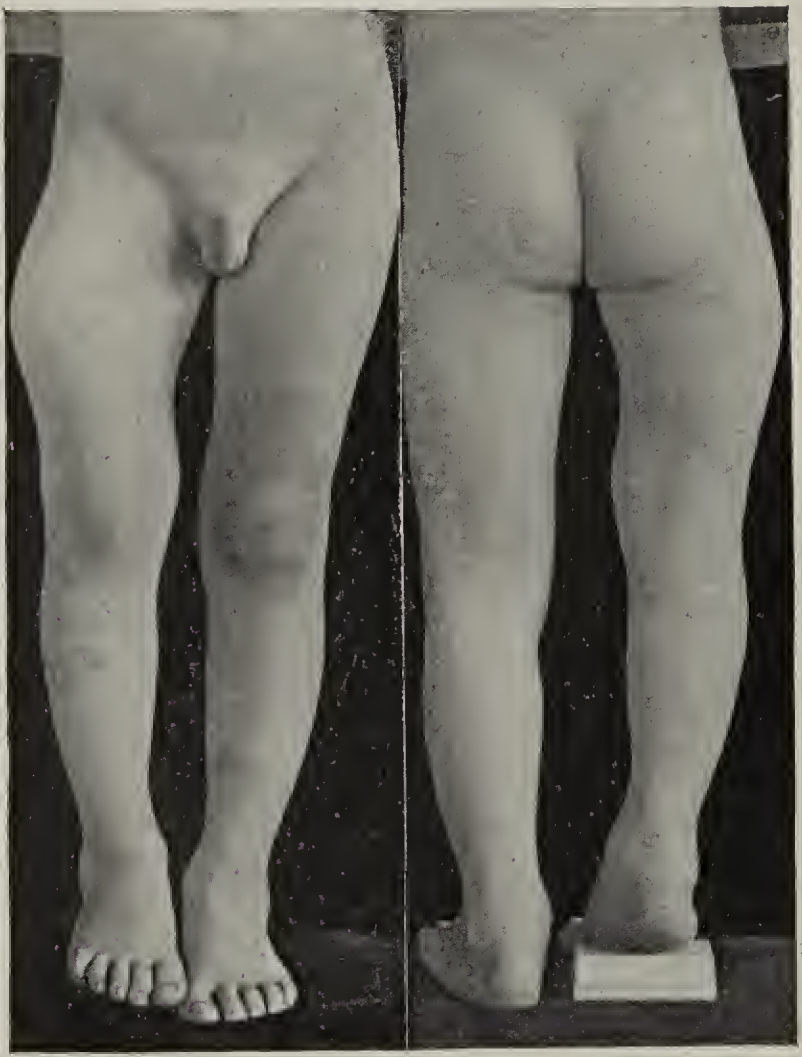

FIG. 4.—Malunion of femur (F. E.) (Case IV, before operation).

Operation, November 30, 1889.—Ether. Amputation was performed just below the middle of the thigh. Rubber and glass drainage-tubes were used, and a wet bichloride dressing (1 to 5,000) was applied. The tubes were taken out on the fourth day. The wound healed by first intention, and he was discharged cured December 21, 1889.

Pathologist's report.—Round- and spindle-celled sarcoma.

CASE II. *Lipomata of the Thighs; Excision.*

CASE III. *Hygroma of the Knee; Excision.*

CASE IV. *Floating Cartilage of the Knee Joint.*—The patient, twenty years of age, male, had had a mild attack of acute synovitis of the knee two months previously. The "cartilage" was removed under cocaine, and was of about the size of a bean. The wound healed promptly and he was up and about at the end of a week.

CASE V. *Plexiform Angeioma of the Thigh; Excision; Recovery.*

(*c*) TUBERCULAR DISEASE.

CASE I. *Tubercular Synovitis of the Knee; Arthrotomy; Recovery.*—T. G., aged twenty months, female, born in Italy, was admitted February 25, 1890. Her parents were well and there had been no injury to the knee. Ten months before her admission, the knee began to swell, and on three occasions it was lanced, leaving permanent sinuses.

Operation, March 1, 1890.—The knee was greatly swollen (three inches and a quarter larger than the other knee) and there was marked redness and tenderness. The movements of the joint were very limited and painful. Two longitudinal incisions were made—one on either side of the patella—opening the joint. The synovial membrane was found in a state of advanced tubercular disease, and was removed. The articular ends of the bones did not seem to be involved. The joint was diseased. Recovery was very slow, and a subsequent relapse after leaving the hospital made a resection necessary.

CASE II. *Amputation of the Thigh for Tubercular Arthritis of the Knee.*—G. R., aged forty-seven, male, admitted February 6, 1890. His health was poor and there was evidence of a tubercular deposit in the apex of one lung. Two years previously he had received a slight injury to the left knee. Since that time there had been a gradually increasing enlargement, accompanied by pain and tenderness with impairment of the functions of the joint. He had been unable to walk for the past six months. At the time of his entrance into the hospital the left knee was enlarged one inch at the middle of the patella, and there was an atrophy of two inches at the middle of the thigh. The condyles were thickened and there was slight lateral motion with localized points of tenderness over the condyles. Mobility was almost entirely gone, the leg being fixed at an angle of about 150°. There was hardly any fluctuation and the patella was slightly movable.

Operation, February 15, 1890.—A transverse incision was made just below the patella, opening the joint. The lower end of the femur, the patella, and the articular end of the tibia were all so badly diseased that excision was deemed impracticable, and amputation was at once performed. The section of the femur was made about three inches above the condyles. The drainage-tubes were removed on the fourth day. The wound healed primarily and he was up at the end of ten days. The pathologist's report showed a typical tubercular joint.

CASE III. *Tubercular Arthritis of the Knee; Amputation; Recovery.*—E. W., aged thirty-eight, male, was admitted April 10, 1890. He had had chronic inflammation of the right knee for twenty-nine years, with an acute exacerbation following an injury three months previous to his admission. His general health had never been good, and he had chronic epilepsy. Signs of tubercular deposits were found at both apices. The affected knee showed an enlargement of three inches and a half, with flexion limited to 31°. There was also marked atrophy of the muscles of the thigh. In consideration of his poor general condition, amputation was chosen in preference to resection.

Operation, April 15, 1891.—The section was made just above the condyles. The wound healed by first intention.

The examination of the knee showed well-advanced tubercular disease.

CASE IV. *Tubercular Osteitis of the Tarsus; Incision and Curetting.*—A. D., aged six, male, Italian, admitted November 18, 1889. Three months before, following an injury, his left foot began to swell and become painful. It was opened and a sinus persisted, which at the time of operation communicated with bare bone. A two-and-a-half-inch incision was made (November 30th) and the granulations were thoroughly curetted. (The tarsus was subsequently excised, December 30th, by Dr. Weir.)

Case V. *Synovitis of the Knee (Chronic Tubercular); Irrigation of the Joint; Improvement.*—H. B., male, adult. He had a chronic synovitis of the right knee with a large effusion. The knee was first made aseptic and the fluid withdrawn by means of a trocar, and then distended with a 1-to-30 solution of carbolic acid. The washing was continued until the fluid came away clear, and then the leg was immobilized in a close-fitting plaster splint which was left on for a week. The pain was considerable for the first twenty-four hours, but was slight thereafter. Marked improvement resulted, but a few months later he returned with a slight recurrence of the effusion, and a second washing was made with further improvement.

Case VI. *Osteitis of the Femur; Incision and Chiseling; Improvement.*

Case VII. *Excision of the Ankle for Tubercular Arthritis* —M. S., aged thirty, female, admitted June 11, 1891. She had had pain in the left ankle for fifteen months. Swelling soon developed with limitation of motion. At the time of the operation there was a thickening of an inch and a half.

Operation, June 14, 1890.—Excision. She made a good recovery.

The pathologist's report showed tuberculosis of the tarsus.

Case VIII. *Tubercular Arthritis of the Hip; Cold Abscesses; Incision.*

Case IX. *Arthritis of the Knee (Tubercular); Amputation; Recovery.*—E. F., aged thirteen, admitted October 22, 1889. She had been in good health until three years before, when she was kicked in the knee by another child. Pain and swelling followed. The symptoms increased in severity slowly, and the joint movements became more and more limited. Three months before her admission an incision was made over the swelling and the sinus failed to close. There was three inches enlargement at the patella of the affected knee, with marked atrophy of the muscles of the thigh. Distinct fluctuation was also found over the joint.

Operation, November 9, 1889.—The incision was so planned that a resection could be done in case it was desired, but the disease was found so far advanced that amputation was thought preferable. The section of the femur was made just above the condyles. Prompt recovery followed.

Microscopical examination failed to show the presence of tubercles.

(*d*) INFLAMMATORY.

These, twenty-six in number, were as follows:

Case I. *Suppurative Arthritis of the Knee (following Subcutaneous Suture of the Patella).*—The patient, a male, aged thirty, fractured his right patella on August 10, 1890. Subcutaneous suture with silk was done on the same day. At the end of ten days the dressing was removed and the swelling had entirely subsided; a plaster splint was applied, and on the twelfth day he was allowed to go home. The knee became very painful during the first night, and two days later he returned to the hospital. The knee was badly swollen, and the temperature was high. The openings where the suture had been introduced were enlarged, and considerable pus escaped. Drainage-tubes were inserted and frequent irrigation was employed. The temperature continued to rise and the inflammation to extend in spite of the free incisions. He came under Dr. Bull's care on August 28th On August 30th he was given ether and the joint was drained from below. His condition was extremely critical for nearly a week, the temperature ranging from 103° to 105°. Recovery finally took place.

Cases II, III, IV, V. *Necrosis of the Tibia.*

Cases VI to XVIII. *Inguinal Adenitis; Removal of the Enlarged Glands, either by Dissection or Curetting.*

Case XIX. *Femoral Adenitis.*

Case XX. *Cold Abscess of the Thigh; Incision and Drainage.*

Case XXI. *Ulcer of the Leg; Skin Transplanting.*

Case XXII. *Senile Gangrene of the Foot and Leg; Amputation of the Thigh; Death.*—The patient, a man, aged seventy, had gangrene of the right foot and leg extending nearly to the knee. He had well-marked general atheroma of the arteries, and his condition was very poor. The thigh was amputated in the upper third. The flaps became gangrenous during the second week, and he died from exhaustion two weeks after the operation.

Cases XXIII and XXIV. *Osteitis of the Tibia.*

Case XXV. *Excision of the Metatarso-phalangeal Articulation for Hallux Valgus.*

Case XXVI. *Necrosis of the Femur; Chiseling.*

MISCELLANEOUS.

Case I. *Genu Valgum et Varum; Double Osteotomy; Recovery.*

Case II. *Lipoma of the Back; Excision.*

Cases III and IV. *Varicose Vein of the Leg; Incision and Resection.*

Case V. *Sinus of the Buttock (Tubercular?).*

Case VI. *Lumbar Abscess.*

Case VII. *Congenital Web Fingers.*

Case VIII. *Multiple Abscesses of the Leg, Thigh, and Back.*

In addition to the operative cases there were sixteen fractures of the femur treated during the same time. Of these, an unusually large number (five) were multiple fractures. Three were compound, and one, already described elsewhere, was complicated with an unrecognized fracture of the twelfth dorsal vertebra. The patient died on the twelfth day, from intestinal obstruction caused by paresis. In two others there was traumatic delirium, which quickly proved fatal, and in a fourth, which was a very bad compound fracture (treated conservatively at first, then by amputation), the patient died of septicæmia.

The general plan of treatment adopted was early reduction, under ether, with the fragments kept in apposition by means of Buck's extension apparatus and coaptation splints at the site of the fracture. The extension was kept on from six to eight weeks.

In a few cases, mostly in children, the leg and thigh were put up under ether, and extension made in a firm plaster splint reaching from the toes to the crest of the ilium and incasing the whole pelvis. Heavy extension was left on until the splint had thoroughly hardened. This was left on for two weeks, and a second splint applied.

The results obtained were very satisfactory. Vertical extension (both legs) was employed in one case, in a child eight months of age. The result was no deformity and no shortening.

Microcidine.—According to the *British and Colonial Druggist*, "The new antiseptic which Professor Berlioz, of Grenoble, has invented, and which is at this moment receiving so much attention from the members of the French Academy of Medicine, is described as a compound of soda and naphthol, the latter, as is well known, being itself a powerful antiseptic. But it is claimed for the new substance that it is perfectly harmless, extremely soluble, and very much more efficacious than thymol, boric acid, carbolic acid, or any of the other antiseptics in general use."

THE MODERN MANAGEMENT OF DYSPEPSIA AND CHRONIC GASTRITIS.

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THE clinical therapeutics of the diseases of the stomach is a subject of great practical importance. The diseases of no other organ come more frequently under the care of the physician, produce more annoyance or suffering, and yield more surely to judicious treatment. Modern therapeutics affords no more brilliant results than those obtained in the management of these cases.

This article on dyspepsia and chronic gastritis is not intended to be an exhaustive one. Ætiology, pathology, and symptomatology will be considered only in so far as they bear on differential diagnosis and treatment. The cure of any chronic disease is largely comprised in its ætiology, and a correct diagnosis is an essential preliminary to rational treatment.

However closely dyspepsia, in the end, may be associated with errors in diet, the derangement of the chemical process of digestion is nearly always due, in the beginning, to disturbance of cell secretion, or to impaired muscular movements. There is no lesion of the mucous membrane. Hence dyspepsia may be briefly defined as gastric insufficiency without alteration of structure.

The impaired movements and defective secretion are the local manifestations of a constitutional state. Who would find the cause of dyspepsia must look beyond the stomach to the thin and impure blood, to the weak and tired nerve centers, to impaired cell activity throughout the body. Perverted secretion is often the result of defective cell nutrition. The fault may lie in the lack of tissue-forming material in the blood, or this important nutritive fluid may be surcharged with the products of defective metabolism or with poisonous material absorbed from the alimentary canal or left in the circulation in hepatic or renal insufficiency. Thus we find it in the anæmias, gout, chronic rheumatism, lithæmia, malaria, syphilis, and chronic nephritis; or it may prove to be the legacy of former acute illness or infectious disease. But the chief factor in the causation of dyspepsia —always present, always active, affecting either secretion or muscular movement, or both—is impaired nerve supply. This weakness or perversion of the regulating or controlling action of the nervous system may be of central origin or reflected from a distant or functionally associated organ. The great clinical masters have often noted the frequency with which dyspepsia occurs in the neurotic—an individual with congenital instability of nerve. The part that heredity plays preponderates; but impaired innervation is not rarely the result of the reckless perseverance and unrest of modern life. Dyspepsia finds many a victim on the rugged highway along which honors lie to be gathered and worn. Nothing further need be written, we hope, to impress the principle that, if we wish to cure dyspepsia, our therapeutic purpose must reach beyond the stomach to the underlying defect of constitution or vice of nutrition.

But this is not all. Defective alimentation—overeating, improper food, and, indirectly, starvation through exhaustion of the nerves of organic life—must be considered as a possible cause by destroying the equilibrium that obtains in health between the quantity of gastric juice secreted and the chemical work required of it. Thus the stomach is unequal to its task. An excessive use of the carbohydrates is a well-recognized cause of lithæmia and of neurasthenia, and these originate dyspepsia through their depressing psychical states and the exhaustion of the nerves presiding over secretion and muscular action. There is, however, no satisfactory reason for doubting that errors of diet always give rise, at all events in the beginning, to the lesions of gastric catarrh.

Chronic gastritis is frequently the sequel of dyspepsia. It often follows the acute disease, which is only rare because it is not recognized. Occasional transgression of dietetic laws seldom results in persistent pathological changes. Habitually recurring patchy congestion, initiated by some mechanical or chemical irritant contained or developed in the food, may not subside while the stomach is taking its rest, and the tissues and nutritive processes are molded into conformity with the morbid condition. Passive congestion of the stomach in disease of the liver, lungs, heart, or spleen, or from venous obstruction by the pressure of a tumor or enlarged gland, is accompanied by the secretion of a large quantity of mucus, and a diminution of hydrochloric acid and undue fermentation with its consequences results. Anæmia with its weak heart acts in a similar manner. Chronic gastritis may be secondary to renal disease, or form a part of the history of arterio-capillary fibrosis. Not a few of the most obstinate cases have for their cause an endarteritis of long standing, or amyloid degeneration from exhausting purulent formation. Again, a naso-pharyngeal catarrh or bronchitis may initiate and feed the fermentative process by the decomposing mucus or pus finding their way into the stomach. The successful management of chronic gastritis depends largely on the detection and removal of the underlying cause that gives its type to the disease.

The differential diagnosis of dyspepsia and chronic gastritis requires close study and careful reasoning. The two diseases merge into one another, and in vague cases without clear-cut features it is difficult to learn at the bedside with which form we have to deal. The history of the case, the order of appearance, and duration of the symptoms must be taken into consideration in the formation of a conclusion. The known nature of the disease to which the gastric disorder is secondary may help to clear up the obscurity. A careful chemical or microscopical examination of the blood, of the gastric juice, and of the excretions will always prove of value.

The local signs of chronic gastritis are persistent, while those of dyspepsia are intermittent and capricious. The pain of chronic gastritis is more severe when the stomach is full; in dyspepsia it may occur only when the stomach is empty and be relieved by taking food. Violent paroxysms of pain in chronic gastritis are made worse by pressure; in dyspepsia, firm pressure may give relief, and an interval of comfort follows each attack. Repeated vomiting of mucus, or of mucus mixed with undigested food, is pathognomonic of catarrhal gastritis. Increased hydrochloric-acid formation is present only in dyspepsia; in chronic gastritis the quantity of hydrochloric acid is diminished. Thirst, nausea, and anorexia are more frequently linked to an alteration of structure. In certain mild forms of gastric catarrh a morbid sensation, closely allied to the sense of hunger and radiating backward between the scapulæ, recurs at regular intervals; its disappearance on the taking of the first mouthful of food is followed by nausea; the slight irritation of the food seems sufficient to produce dilatation and stasis of the blood current in the previously hyperæmic mucosa. It is not on any one sign, but on the symptom group and the results of the examination of the contents of the stomach, that the diagnosis must be based.

The modern methods of examining the gastric juice are familiar to the profession and need not be reviewed in this article. Always of value, the analysis is in some cases essential to a correct diagnosis, and often enables you to see where you could only guess at the truth. It is a sure guide in the administration of drugs to supplement the defective gastric juice. But it is too great a burden to the physician and too disagreeable to the patient to become popular with the profession.

The most important constituent of the gastric juice from a pathological point of view is the hydrochloric acid. A large quantity of albumin requires only a very small amount of pepsin to dissolve it in a proper medium; and it has not been demonstrated that too little pepsinogen is ever secreted in any other condition than glandular atrophy. It is on the variations of hydrochloric acid and the abnormal muscular movements of the stomach that we have found it of most value at the bedside to base the classification of dyspepsia; and it is accordingly as these two factors are increased, diminished, or irregular that a deviation from a state of health can be said to exist.

Dyspepsia with increased formation of hydrochloric acid is usually associated with one of the neuroses, and occurs in two forms—superacidity and supersecretion. In superacidity the fasting stomach is found empty; in continuous supersecretion the fasting stomach contains one or more ounces of gastric juice, which is usually superacid. Both predispose to gastric ulcer (markedly so in anæmic females) and are frequently followed by dilatation from pyloric spasm. The hydrochloric acid may be secreted in such quantity and so rapidly as to at once stop the action of the saliva, which should continue in the stomach from ten minutes (Ewald) to half an hour (v. den Velden). Gastric fermentation does not occur unless, as may happen when dilatation is present, the hydrochloric acidity falls below 0·7 per cent. The albuminoids are rapidly digested, the fats are partly decomposed and give rise to heart-burn, and intestinal digestion is delayed or arrested by the superacidity of the chyme. The appetite is increased; acid eructations and vomiting are frequent; epigastric pain is paroxysmal and severe and is sometimes relieved by the ingestion of albuminoid food. Diarrhœa is often present, and anæmia and emaciation are usually marked.

Dyspepsia with diminished formation of hydrochloric acid is met with most frequently in individuals with "weak stomachs." Digestion is slow and the lactic-acid stage is prolonged. The excess of lactic acid is formed from the sugars (and in small quantity from the starches) through the agency of numerous fermentation organisms; it may be split up into water, butyric and carbonic acids, and hydrogen. The hydrochloric acidity, even at the height of digestion, does not often rise above 0·7 per cent. A little too much work or mental worry and a little too much food suffice to derange the digestive process. The flatulence and acidity are most marked two or three hours after meals.

Irregularity in the secretion and muscular movements of the stomach is due to sympathetic disturbance. The stomach, through its complex nerve connections, is in intimate relation with nearly every organ in the body. Habitual speedy vomiting without preceding nausea is nearly always reflected. The gastric disturbance comes on suddenly and without warning, and varies in kind from day to day. In individuals with impressible nerve centers and weak inhibition the stomach is the organ toward which every little local storm seems to wend its way.

Exaggerated muscular movement of the stomach is a rare derangement of the process by which food is made ready for assimilation. The exaggerated peristalsis commonly extends to the intestine, the two being intimately associated in their movements, a principle utilized to excite a free discharge of bile and to cause a dilated stomach to empty itself by means of the cold-water enema, and not only the solution but the absorption of aliment is prevented. It is often associated with hyperæsthesia of the mucosa, and a ravenous appetite and obstinate insomnia.

Gastric atony incidental to a state of weakness and relaxation of the whole muscular system is a common gastric defect. Brain-workers who lead sedentary lives furnish the largest number of its victims. The face wears an expression of fatigue; the heart is weak and irritable, and arterial tension is low; the muscles of the throat are flaccid—there is a general want of tone. The gastric juice is normal; digestion is slow, but complete, if not interfered with by fermentation. The appetite is unimpaired and the bowels are constipated. A sensation of uneasiness rather than of distinct pain; a feeling of weight or heaviness from long-continued pressure of the food on the same spot; flatulency from muscular weakness and vaso-motor relaxation (as in the intestinal paresis of peritonitis), or from regurgitation of gas through the open pylorus—complete the clinical picture. The extreme nerve-tire explains the want of muscular tonicity, and the weak stomach, on account of the prolongation of its labor, gets little rest. Unless the process be controlled by judicious treatment and the organ and system strengthened, extreme dilatation will surely supervene.

There is another form of gastric atony that frequently comes under the care of the physician, and which dates its beginning in early life. One can not closely study these cases without detecting heredity's powerful hand in their development—a variety of the "weak stomach" in which the inherited defect falls on the muscular rather than the secretory system. Atrophy of the gastric and intestinal glands may rapidly follow dilatation, and death from malnutrition close the scene before the morning of life has passed; or the curse may be suspended while the years roll by until finally the sword falls and "slits the thin-spun life." The stomach may be strengthened by careful feeding, but the vice of constitution is irremediable.

Dilatation in either form of gastric atony is commonly associated with a like condition of the large (and small) intestine. Malnutrition of the local ganglia in all probability has something to do with the glandular atrophy. In no other condition do the symptoms of auto-infection become so prominent. The epithelium throughout the alimentary canal is lowly organized, and here and there the wall is as thin as parchment and free from glands. These pouches (favorite sites of which are the cæcum and hepatic and splenic flexures of the colon) are filled with decomposing and fermenting fæces. The peptones fail to be reconverted into serum-albumin on their way through the mucous membrane to the central lacteal and blood-vessel. Emaciation is marked, and the products of fermentation and decomposition and incomplete digestion absorbed from the alimentary canal congest the liver, irritate the nerve centers, and inflame the kidneys. Hysteria, insomnia, or a demon-like melancholy which no effort can throw off, fastens itself on the victim. The clinical history, self-infection, the absence of hypertrophied walls and visible movements, easily exclude dilatation from pyloric obstruction.

After what has been said on differential diagnosis, chronic gastritis can be dismissed in a few words. The symptoms vary very much with the extent and destructiveness of the inflammatory process, with the degree of glandular atrophy and dilatation. The dilatation is mechanically produced by the mass of fermenting food, or by infiltration of the muscular layer with inflammatory products; when well marked, its diagnosis presents no difficulty. Atrophy of the gastric glands is due to parenchymatous or interstitial inflammation, and its diagnosis can be based with certainty only on the long-continued absence of hydrochloric acid, pepsin, and rennet ferment, as proved by repeated examination of the gastric contents. In simple catarrhal gastritis there is excessive secretion of mucus.

The exact diagnosis of disease has its peculiar charms; at all events, in difficult cases, it is the flowering of medical science. But after the flowers should come the fruit. Turn we now to treatment—to the consideration of the moral management, hygiene, diet, and medicinal agencies which clinical experience has shown to be of value in the palliation or cure of dyspepsia and chronic gastritis.

The moral management of these diseases has not received the attention that it merits. We wish to urge its importance in the cure of those cases in which the weakness or derangement of the central nervous system is well marked —when this state is a primary ætiological factor. In the cure of neurasthenic dyspepsia it is the keystone to the arch; it is the one means of rolling away the cloud that darkens the pathway of the neurotic. These individuals have no will-power or reserve force, and in no other way can we aid them in throwing off the delusion that they are incurable. It is our duty to make every endeavor to impress the patient with the fact that his case is thoroughly understood. A correct anatomical and pathological diagnosis will enable the physician to state with precision what can be done. Firmness and kindness of heart are the means of winning confidence. Faith, inspired by truth, honesty, and manly bearing, stimulates and tones the nervous system and unbinds the will. No one doubts the power of expectant attention. Digestion is dominated by the nervous system, and the centers controlling secretion and muscular movement are re-represented in the cortex. The physician who fails in the moral management loses an essential aid in the cure of these chronic cases.

Not the moral management alone is of importance; the life of the patient must be on a physiological basis. Insist on slow and regular eating, and not too great a variety. The stomach is only confused and disordered by course-dinners. A rest of half an hour before and an hour after each meal is a duty. Clothing should receive consideration, and in our climate the whole abdomen should be protected at all times by a knitted bandage of wool, wool and silk, or silk. The elasticity supports also the dilated stomach and gives comfort in obesity. The method and frequency of bathing should be suited to the patient's general condition. Careful attention to every detail is the price of success.

Hours of work, recreation, and rest are to be proportioned to the severity of the case. In the mild cases the patient should live in the open air during the hours of sunshine. A daily drive or a ramble and view of a favorite landscape may lift the mind away from self and the worries of business and life's daily cares. In the severer cases confinement indoors may be obligatory, the bedroom must be kept full of fresh air, and the day be spent in quiet enjoyment in a sunny room. In the grave cases, when the nervous system is a wreck and the function of every organ in the body is in abeyance—a condition closely allied to prolonged shock—isolation, absolute rest in bed, massage, electricity, oxygen inhalations, and a tissue-building diet will frequently enable the patient to emerge from the restorative process fresh as if from Medea's charms.

But of more importance than all else in the treatment of these diseases is the selection of a proper diet. This is "the great and master thing"—the question of feeding. And right here it is essential that we should clearly define the principles which may best guide us in the adaptation of a diet to individual cases of disease.

And first we must protest against the guidance of a morbid appetite and of morbid desires. The "natural instincts" of the patient must not "have free play," though "they have grown up under the regulating force of universally acting biological laws, under the pressure of the sleepless vigilance of the law of survival of the fittest, and the sure incidence of the laws of heredity" (Sir William Roberts). It might be well to suggest the possibility of the development of types from unhealthy variations, which might serve fittingly to illustrate the self-avenging power of Nature's laws. Every form of force is modified by the nature of the medium which manifests it, and the "natural instincts" of the invalid are no better guides to alimentation in disease than are the delusions of insanity guides to conduct.

"Find out that course of life which is best," writes Pythagoras, "and habit will render it most delightful." If reason, then, must define the diet, on what knowledge should its dictates be based? The answer is a simple one—on "the rational standard of diet as revealed in the customs and habits of the people," as Sir William Roberts rightly observes, and as corrected by the known digestibility and nutritive value of the various articles and classes of food; on the capability of the digestive organs; and on the state and needs of general nutrition.

A cursory view reveals the fact that the inhabitants of the temperate zone live on a mixed diet of albuminoids, fats, and carbohydrates. It would be interesting to know something of the effect of these classes of food on destructive metabolism and the building up of tissue. The albuminoids increase nitrogenous waste. When administered along with the fats or carbohydrates in sufficient quantity to supplement and raise the force evolved in the splitting up of the albumin in the circulating fluids to the level of the requirements of the vital processes, or when the storage of fat in the system can be utilized for this purpose, none of the cells of the body are destroyed. When the quantity of albumin circulating with the nutritive fluids is not all required to meet the demands of the vital processes, within certain limits, as defined by the inherent activity of the cells and that delegated or withheld by the nervous system, new cells are generated. Thus albumin is the great sustainer of life, and, under proper conditions, the great builder of tissue; it can not be supplanted beyond a certain point by any other food. It makes the blood richer in red corpuscles and in hæmoglobin, as any one can easily demonstrate by the hæmocytometer and hæmoglobinometer in anæmic and chlorotic dyspeptics on an exclusively animal diet. It is the only class of food that can alone support life, and it forms the physical basis of life in its simplest and primordial form.

The assimilation of the fats is aided by the albuminoids. Fat diminishes nitrogenous waste and is intimately concerned in the nutrition of the nervous system, and forms nearly all the fatty tissue of the body. The carbohydrates never enter into the formation of tissue, but aid the organization of albumin and fat by supplanting them in destructive metabolism. Thus it is evident that the nutrition of the body can be most economically maintained at a high point by a due admixture of these three classes of food; but in disease the capability of the digestive organs, or, in the special diseases under consideration, the capability of the stomach imperatively demands a compromise. But an early and cautious return to a suitable mixed diet will suggest itself to the common sense of the physician as the best method of avoiding the evils of exclusiveness. The excessive or exclusive use of the carbohydrates tends to dilatation and disease of the stomach and intestines, and the individual is pale, thin-blooded, weak, and bloated. A long and exclusive use of the albuminoids tends to certain circulatory derangements and to nervous irritability; while the malassimilation of fats is the most important factor in the production of the emaciation in the pre-bacillary stage of tuberculosis. The physician, like the general he should be, must avail himself of every opportunity to advance or be ready to retreat under cover on the first note of warning, until his object has been attained.

In the mean time the strength of the enemy must be correctly estimated, or, to drop the metaphor, the capability of the stomach must not be exceeded. That all of the food taken undergoes digestion and absorption is made known by the absence of the clinical signs of fermentation or putrefaction, but chiefly by the chemical or microscopical examination of the urine, blood, fæces, and contents of the stomach about four hours after meals. The stomach should be free from fermentation organisms, and the stools show no undigested food or unusual fœtor. The blood should become constantly richer in red corpuscles, or in hæmoglobin, or in whatever element it is found defective in the first examination. Eosinophile cells diminish in number, poikilocytosis becomes less and less marked, and the flat red corpuscles grow fuller and more biconcave. The changes in the blood from day to day form a very good index of assimilation. While the patient is on an animal diet, the presence of indican in the urine (if there be no pus in the body) points to intestinal putrefaction, indol being a product of the putrefaction of albuminoids. The information obtained in this way is at once practical, scientific, accurate, and sure; in a large clinical experience it has proved to be a satisfactory guide.

The application of these general considerations to the treatment of the special forms of dyspepsia and of chronic gastritis may now briefly command our attention.

In dyspepsia with increased formation of hydrochloric acid the patient must be held strictly to a diet of lean meats. The keeping, selection, and cooking of meats can not be discussed in the limitations of this article. All lean meats should be broiled or roasted; never stewed or fried. The staple food should be the muscle pulp of beef scraped or chopped free of fibrous tissue, steak, roast beef, or mutton chops, or roast mutton. For the sake of variety, one can ring the changes on the white meat of poultry plainly cooked, fresh white fish, or raw oysters (care being taken not to swallow the tough part) served on half-shell with lemon, or the white of egg cooked just enough to hold together. The juice of a few tender sprigs of celery, or of water-cress, or of horse-radish, extracted with lemon juice, may be used to give flavor. In the way of drinks, a small cup of black coffee (if there is no contra-indication) after breakfast and dinner, and a small cup of clear tea at noon, should be recommended; but no wines or alcoholic drinks whatsoever. As soon as healthy secretion is restored, the crust of French roll, stale bread dry toasted, and a few tablespoonfuls of well-cooked rice or cracked wheat, or California wafers served with a little butter and salt; and a few weeks later spinach, fresh English peas, string beans, a floury potato, may be added as the patient is cautiously conducted on the way to a normal diet. The juice of ripe fruits may now also be taken without harm.

In dyspepsia with diminished formation of hydrochloric acid, and also dyspepsia with impaired muscular movements, a diet of animal food should be ordered until there is no longer any evidence of fermentation, and the patient be then slowly brought around to a normal diet. The crust of roll, or stale bread toasted so dry that it will snap, are peptogenic, are more easily digested than starch, are not so liable to ferment, and may be given along with lean meat in the beginning of treatment. A few tablespoonfuls of bouillon before dinner will also increase the secretion of pepsinogen. Animal fat—as butter, or a slice of the boiled side of bacon, or cod oil—should be given as soon as the stomach and intestines are free of fermentation, to aid in toning and building up the central nervous system. But if the fat denudes the tongue or incrusts it with a layer of dead epithelium, or excites nausea or eructations, it must be at once withdrawn. Inunctions of animal fats or pancreatized cod oil as a nutrient enema may then aid. A glass of hot sterilized milk will often prove of value when sipped very slowly in the interval between meals, or at the beginning of the meal as a soup. The tea may be made more delicious by a slice of lemon and a teaspoonful or two of old velvety rum. A little old whisky or brandy may be permitted if the heart is weak. The rule to return to a mixed diet suited to the state and needs of general nutrition as rapidly as the capability of the stomach will permit here also obtains. In dilatation, soups and milk do not agree; the small bulk and high nutritive value and digestibility without irritation make lean meats the staple food. Fats must be watched.

In dyspepsia with exaggerated peristalsis the diet must be bland and unirritating. Milk and its preparations, lean meats, and light farinaceous food, without succulent vegetables and condiments, should be ordered until the condition is controlled by drugs.

In dyspepsia from sympathetic disturbance the diet should be fluid and non-irritating—as peptonized milk or milk gruel, koumiss, matzoon, buttermilk, white of egg, the juice of beef or other meats—while the disease of which the dyspepsia is a reflex is discovered, and palliated or cured.

In chronic gastritis, clinical experience has taught us in the beginning of the treatment to withhold starches, fats, and sweets; and the less the chances given for fermentation and putrefaction, the sooner we may expect a cure. The treatment proceeds along the same line as in weak stomachs, but progress is slower and minute attention must be given to every detail of management and every aid be brought to bear. In venous stasis, the stomach being kept clean, the diet should be such as will least irritate, and only enough albumin and fat to maintain the nutrition of the body be given. If the liver is involved, fat must be supplanted by carefully selected cereals and fresh vegetables. In threatened cardiac insufficiency, after diminishing the work of the heart and prolonging the period in which it may take its rest, give along with the albuminoids enough carbohydrates to enable some of the albumin to be organized, and thus guarding also against the storage of fat. The diet of dilatation has already been given, and artificial digestion is the only additional indication afforded by gastric atrophy. Many details have been written at the risk of becoming tiresome, and many more must be left to the good sense of the physician.

Before passing from the dietetic to the strictly medicinal treatment, something must be said on gastric cleanliness. We all know the radical revolution that cleanliness, antisepsis, and free drainage have created in surgery. The supreme indication in the treatment of an inflamed surface is to keep it clean; and this is pre-eminently so when the inflamed surface is a highly organized secreting and absorbing structure. Stomach-washing is a crude attempt to apply these principles of surgery to the treatment of the diseases of the stomach. In dilatation of the stomach, or in dyspepsia and gastritis with the stomach irritated by the products of micro-organisms, it does not require much experience to teach one its value. Plain boiled water does the work well, to which in hyperæsthesia of the mucosa a little chloroform water may be added, and thirty grains of subnitrate of bismuth be given at the end of the procedure. Change of diet, by changing the culture soil where fungi are present, also makes for cleanliness, and is very refreshing. Drinking of hot water by washing and draining downward is also an important aid. It also soothes the terminal nerves and promotes secretion, just as the daily bath leaves the skin in a healthier state. Moreover, it is a gentle, safe, and sure diuretic, increasing not only the urine water, but also the solid excreta held in solution, promoting both the waste and renovation of tissue by quickening the circulation of the fluids. Hot water (it is needless to say that it should be taken slowly and at the right time) stimulates the heart and raises arterial tension without contracting the arterioles; and, consequently, should not be taken in hæmorrhage, menorrhagia, endarteritis, or in valvular heart disease when compensation is on the verge of being disturbed. Its diuretic power makes it the most valuable means we have of eliminating from the system the poisonous products formed by the tissues or absorbed from the alimentary canal.

The drugs most useful in these diseases are such as increase the capability of the stomach, promote healthy nutrition, relieve grave symptoms, or combat the morbid process. A sweeping exclusion may be made of all medicines that irritate the mucous membrane or derange the chemical process of digestion. Dosing with nauseating mixtures can only do harm. Drugs should be given with a definite purpose in view, and our aim in prescribing should be to combine simplicity, elegance, and power.

The capability of the stomach may be increased in many ways. The gastric juice may need supplementing. Pepsin is not often required, and, if so, a small quantity may be given half an hour after meals. As, when pepsin is needed, there is always diminished formation of hydrochloric acid (as in one form of dyspepsia and in chronic gastritis), five drops (or more) of the diluted acid may be given with the pepsin, and be repeated twice in the succeeding hour. Papoid is of value when given before the hot water to aid in the removal of the mucus. Then one or more of the following drugs, on account of their physiological actions, may be selected to meet the varying indications of defective secretion and impaired movements: The simple bitters increase the acidity of the gastric juice, and are supposed to diminish the secretion of mucus; the proper time to administer them is half an hour before meals; all of them are local irritants, and their use should not be continued longer than three or four weeks. Ipecac promotes the secretion of mucus, and in small doses allays irritability. Opium, morphine, and codeine diminish acidity, allay irritability, and check peristalsis without affecting absorption. Nux vomica increases the acidity of the gastric juice and tones and strengthens the muscular layer. It is the one drug to use in dyspepsia with diminished muscular movement. It also increases the quantity of nerve force radiating throughout the body, and this important action may often be used to promote tissue building. If too long continued, the discharge is excessive and waste of tissue results. Subnitrate of bismuth is astringent, antiseptic, and sedative. Nitrate of silver allays irritability, and is supposed to exert a specific action in catarrhal inflammation. Arsenic inhibits the activity of the hepatic cells, and is prescribed empirically in the neuroses; in the neuroses of the stomach Fowler's solution, in drop doses, before meals is of some value; or the bromide of arsenic, or of potassium, or of sodium, may meet an indication. Iron, the alkalies, oxalate of cerium, and the stimulating antispasmodics are at times of value; also calomel, cascara sagrada, ipecac, aloes, rhubarb, senna, and podophyllin are useful to gently touch the liver or to keep the bowels in a proper state. Salicin, chloroform, and camphor are antifermentative, but the best way to prevent fermentation is to keep the stomach clean, give the proper food, and see that enough hydrochloric acid is present.

To discuss every indication in the treatment of these diseases of the stomach would be to write a volume on therapeutics. To summarize, in conclusion:

1. Chronic gastritis is rarely and dyspepsia almost never a primary local disease.

2. An accurate diagnosis means more than the discovery of defective gastric digestion. We must also know the nature of the disturbance—whether of secretion, movement, or both; the source of the disturbance—whether in bad habits of life, in acquired or inherited defect of constitution, in vice of nutrition, in fault of elimination, or in disease of a distant or functionally associated organ. The solidarity of the organs of digestion is a fact of very great importance in clinical medicine, and dominates the method of managing their disorders and diseases. Their intimate relation through a common nerve-supply, the mingling in the portal vein on its way to the liver of the various materials absorbed from the alimentary canal, the division and community of their labors, the integration of their differentiated functions, make them one in action and in purpose. The management of gastro-entero-hepatic disorders will be reserved for a future communication.

3. The treatment embraces more than the management of the local disturbance. The local treatment is important; the stomach must be kept clean and sweet, its work diminished, its capability increased. But the whole man commands pre-eminent consideration—his mental, moral, and physical condition. And this necessitates the study of the character of the patient, the regulation of his habits of life, the prescription of palliative and curative remedies, and a well-regulated diet. And a well-regulated diet does not mean the arbitrary and indiscriminate use of certain articles of food, but a diet sanctioned by reason and experience, adapted to the state and needs of general nutrition, and to the capability of the stomach and to the peculiarities of the patient. But of more importance than all else is the complete digestion of the food taken; this the physician must see to by daily observation, little changes in quantity, quality, or frequency, wearisome and prolonged supervision. On the necessity of minute attention to every detail we would insist with emphasis, and to induce others to embody this principle in their practice is one of the objects of this article.

THERAPEUTICS.*

By A. S. COE, M. D.,

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Hippocrates's aphorism, "Life is short, art is long, experience deceptive, judgment difficult," ever holds true, more so in therapeutics than in any other branch of medical science. While hygiene, pathology, and clinical research in the natural history of diseases have made great advances during the past three decades, therapeutics has remained tentative and empirical.

This is mainly due to the difficulty of estimating the relative value of the factors entering into the problem of disease and treatment. Hereditary predisposition and powers of resistance, inherited and acquired dyscrasia, are varying factors, which modify the therapeutic effects of remedies and have a predominant influence upon their results; hence the difficulty of formulating a method of treatment or theory of practice. They often vitiate the deductions and generalizations based upon clinical observation and experiment, which explains the discrepancies of reports of observers so often met with in current medical literature.

Another source of fallacy is that normal variations of diseases due to inherited predispositions of temperament, powers of resistance and dyscrasias, and often spontaneous recoveries, are mistaken for effects of remedies, especially in those diseases which have no definite duration and which may end in spontaneous recovery in a short time, or may continue weeks or months without abatement, notably inflammatory rheumatism—which explains why these diseases have as many infallible remedies and theories of cure as there are enthusiasts who experiment upon their treatment.

A specific remedy has yet to be discovered. The idea that every disease has its remedy, if it only could be found, was pretty well exploded until the discovery of micro-organisms, which were found in certain infectious diseases, and it became a belief that these pathogenic germs were their cause. This theory has diverted investigation from the clinic to the laboratory, with the sanguine expectation that specific remedies will ultimately be discovered for their prevention or cure, ignoring the other factors of the problem—inherited tendencies, acquired dyscrasias, etc. Hence the extravagant enthusiasm which greeted the announcement of Koch's cure of tuberculosis by the profession and the lay world, which, after a brief trial in the clinic and hospital, has been relegated to the limbo of the vast number of exploded theories of medicine. This wild enthusiasm which greeted the announcement of the tubercular cure is a fitting commentary upon the credulity which too often accepts conclusions without adequate investigation or proof. This failure and revulsion, because of disappointment, will have a salutary influence. It will divert attention from the laboratory, in which was sought the more simple solution of the problem of contagion and its method of propagation, to the study of the more complex vital processes and forces which underlie it. Two eminent physicians and scientists, Virchow and Semmola, from the first doubted the genuineness of the cure and endeavored to arrest the wild enthusiasm and save the profession from the humiliation which was inevitably to follow. Semmola assumed the thankless task of stemming the torrent of excited and unreasoning enthusiasm by explaining the error of "natural philosophy or violation of experimental logic" by which conclusions were reached, and protested that "these promises would prove illusory and these hopes would continue dreams," notwithstanding they followed the methods of Pasteur by which there had been obtained such "brilliant triumphs in biological discovery." Semmola avers that "a wide chasm separates the clinic from the laboratory," and the canons of experimental logic were violated. "The vaccine of Jenner (which is really an unknown thing) is given to a healthy man in order to render his organism capable of resisting the small-pox, or, in modern parlance, to render him immune from the development of the variola germs." He asks, "What has this form of immunity or non-receptiveness to do with that other form of non-receptiveness which it is sought to impart to an organism already diseased. . . . False premises, false consequences." They are acting upon the assumption that "small-pox poison, which is supposed to be attenuated by passing through the cow, is analogous to the artificially prepared vaccine of Pasteur and his associates." First of all he would have determined whether Jenner's vaccine really represented the attenuated virus of small-pox, and only after this would he concern himself further with the various other virus dilutions. The next step would be to ascertain whether the dilution of a virus by its introduction into an organism of another animal species was the same as the dilutions obtained by physical and chemical means such as the experimentalists had employed during the past ten years. In this neglect he sees a "serious violation of the experimental method—that it is one thing to dilute a virus in a living body and a very different thing to attenuate it by hydrochloric acid or heat. Jenner's vaccine is given to a person in health in order to protect him against small-pox. Koch's lymph is given to a person already diseased by a dyscrasia," which prepares the soil for reception of the tubercle bacillus. "What analogy," he again asks, "is to be found between the first and second form of immunity?" Tuberculosis is an incident in the progress of a dyscrasia the pathology of which is still unknown, and analogy would lead us to suppose that in all infectious diseases the pathogenic germs play a secondary rôle to some primary cause or materies morbi, which has weakened the inherent resisting power of the organism and prepared it for the reception and propagation of the microbes; and until this morbid action can be definitely ascertained, the whole problem of contagion and propagation remains unsolved. "It is a well-founded conjecture respecting the nature of Koch's lymph that it can not possess the property of producing the organic disposition and necessary modifications required to combat the dyscrasia which is the primary cause of consumption, and restore the organism to a normal healthy condition, especially as it is not claimed to cure the initial stage of consumption, nor to destroy the bacillus, but only to destroy the morbid tissue engendered by the bacillus, thereby arresting its propagation." "The destruction of the morbid tissue can not be regarded as equivalent to the cure of consumption of the lungs, as the organism remains unchanged under the influence of the general morbid conditions." Semmola avers that such slow modifications of metabolism "can in general be affected by long-continued hygienic influences and by remedies which, by their long continuance, noticeably modify the direction of nutritive functions." He has observed that this "special biological action is vested in mineral remedies alone—such as arsenic, mercury, and iodine—which, when administered in moderate therapeutic doses, possess the property of long remaining in the organism, during which period they modify the cell-formation through biochemical processes which are brought to bear on the nutritives coming from the external world without producing toxic phenomena. If such phenomena appear, the treatment must be suspended or retarded. By this unknown biochemical action they prove compatible with the life of the organism on the one hand without any visible disturbance; on the other hand, if the application be long continued, noticeably modify the direction of the nutritive functions, so that, as a final result, a cure of scrofula, syphilis, etc., takes place.

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* Read before the Medical Society of the County of Oswego, N. Y., June 9, 1891.

"These mineral remedies in therapeutic doses are capable of effecting these modifications, partly because the organism will readily tolerate these doses for months or years without poisonous symptoms, and will thereby yield the physician in certain chronic diseases the most brilliant results.

"This mode of therapeutic action will never be achieved by organic remedies, least of all by alkaloids, because, instead of acting from the very beginning through the biochemical mechanism peculiar to the mineral remedies on the activities of metamorphosis, they reach muscular, nerve, and gland elements, producing at once more or less disturbance of function. These local disturbances of function produce in the general nutrition profound modifications as soon as they reach a degree of toxicity. And in this case they can not possibly accord with health and life."

When, however, these local disturbances of function are so slight, and the functional modification is inappreciable and pass unobserved, the application can be continued for months and years unfelt by a living organism. "Morphine in therapeutic doses produces stupor and sleep, but in very minute doses the remedy may be continued for months and the subject will not notice it," or the organism in any way be affected by it. "The same is true of strychnine and even with the more poisonous alkaloids. The relation between the degree of toxic action and tolerable therapeutic doses must be borne in mind. The inference is clear that the mechanism through which the alkaloids can modify all of the activities of the metamorphosis is fundamentally different from that through which they are modified by remedies of mineral origin. The action of the latter is primary and incessant and does not require toxicity in order to achieve wonderful results. The alkaloids, on the other hand, produce in homœopathic doses no appreciable effect and possess only transient action in therapeutic doses, and finally in toxic doses become dangerous."

The effects of organic remedies are transient and are useful in tiding over temporary emergencies, and their toxic effects soon pass off and leave the organism unharmed; but when longer continued, produce permanent derangement of function, as is seen in the persistent use of opium, alcohol, chloral, or cocaine, producing diseases often more serious than the ones which they were originally employed to combat. This explanation of the therapeutic action of the mineral poisons, in contradistinction to that of the alkaloids, is worthy of consideration. I have obtained most satisfactory results in some chronic diseases by the persistent and long-continued use of minute doses of arsenic and mercury without knowing by what mode they were accomplished further than the vague conception of the term alterative. In the light of the able review of Semmola, the germ theory of disease remains far from being proved. The primary cause must be sought for in disturbance of function, causing a morbid disposition to receive and propagate the pathogenic germs, which view is sustained by experience and observation in all epidemics. The majority of people subjected to the same external influence and breathing the same atmosphere escape the supposed specific effects of the germs. After a long continuance of the epidemic—when, according to natural laws, the germs must have been vastly multiplied—the abatement of the disease is often as sudden as its outbreak. The great improvement of modern surgery would apparently give validity to the germ theory if it were not that two of the most distinguished and successful surgeons now living—Tait and Keith—have wholly abandoned the antiseptic method and now rely solely upon improved hygienic or sanitary methods and improved technical skill and appliances. I say apparently because, reasoning from analogy, putrefactive fermentation never attacks living organisms. Life is antagonistic to it. It is only when vitality has departed from the organism and it is ready for disintegration that the microbes find a fitting soil for their propagation, and in surgical wounds they find conditions analogous to the dead organism in the imperfectly organized lymph and discharges. Semmola denies the genuineness of Pasteur's cure of hydrophobia. He forbears any reference to the comical aspect of the question. "The pen of a Molière would be needed to portray this progress in modern medical science, representing men in sound health who for the purpose of obtaining assured immunity from the virulent germs of the external world subject themselves to series of antidiphtheritic, antityphous, and antiscarlatinous preventive inoculations, thus producing in themselves a series of artificial diseases." He acknowledges that the methods of Pasteur have been crowned with brilliant biological discoveries, "but these triumphs in their application to man for the prevention and cure of virulent and contagious diseases have been proved worthless, and will so continue in the future. . . . Koch, by dint of systematic and painstaking labor, has discovered a new toxic principle surpassing in energy all similar substances thus far known. This toxic principle is of the nature of the ptomaines, which can have no therapeutic value, but its pathological significance is of great importance." When this theory of Koch's cure of tuberculosis is laid at rest alongside of the "pneuma" of the ancients and the "archeus" and "arcana" of mediæval medicine, its history will read like a chapter from Paracelsus and Van Helmont. It is not my purpose to disparage these great names, which are inseparable from the history of the development of medical science through the ages, but simply to illustrate the immortal aphorism of the father of medicine which heads this paper. In the mysticism and the scholastic speculation inseparable from their age, and theories based upon imperfect data, there were germs or glimpses of immortal truths, which have been winnowed and garnered by a more enlightened age. Out of the "pneuma" of the ancients, a mystic indwelling spirit, universal and separable from the body, which presided over health and life, has been developed the more rational theory of vital forces, and which is still to be a factor of further discoveries. Out of the "arcana" of Paracelsus and Van Helmont has been derived the knowledge of the therapeutic properties of mineral remedies, and from alchemy, which they practiced, has grown the great science of modern chemistry. The discovery of the pathological importance of the ptomaines will ever remain one of the great triumphs of Koch and his colaborers. Time, and time alone, can determine the relation which pathogenic germs bear to disease, whether as a primary cause, or as only secondary to some grave primary causes which so far have eluded all research. It seems marvelous that these micro-organisms, which are supposed to be constantly seeking entrance into the organism for the purpose of its destruction and to require constant vigilance to keep them out, and in consideration of their virulence and malignancy, did not exterminate the human race before they were discovered. In a financial point of view the profession, aside from the mercenary craft hanging on its outskirts, is a gainer by the extravagant enthusiasm engendered by the discovery of the micro-organisms, of which Koch's cure of tuberculosis is a practical application. It has facilitated the introduction and sale of a host of germicides and remedies which are supposed to be antagonistic to the life of the germs and their propagation. The physician has been able to magnify the importance of his services. In midwifery a complaint has been referred to me from a distant city relative to an extravagant bill for attendance by the physician, who prolonged and multiplied his visits beyond the apparent needs of the case, which he justified by the alleged invasion of microbes, of which the patient was in constant danger and required constant or frequent watching. I fear that the pecuniary consideration is not the only burden that weighs heavily upon the poor, but that the meddling with the beneficent processes of Nature often retards the normal evolution of the parturient and lying-in state.

OBSTETRIC RECORDS.

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Few truer statements have been made than that "the true value of a scientific observation bears no direct relation to its apparent present value." It is an oft-repeated complaint that not enough recording is done by Americans for Americans; that we are obliged continually to draw upon the accumulated statistical wealth of the painstaking German for our facts. There is no branch in medicine or surgery in which this is truer than in obstetrics, and there is no branch in which there is less occasion for it to be true. While statistics can be kept up to better advantage in a hospital than in private practice, it still remains that a case of labor is about the same thing whether it occurs in Germany or in America, in a hospital or in a private house. Statistics, conscientiously kept, are of positive value, however little known is the place and however humble the recorder. The fact is the only permanent thing, and he who discovers a new fact or assists to emphasize an old one has done something of positive value.

It is quite necessary that special obstetrical statistics should be kept in this country, for, with our population of mixed races, we are not in a position to compare our own people with the people of older countries, whose populations have been continued in certain strains for such long periods that their types of people are relatively fixed. I have little doubt that we shall find, when we have accumulated sufficient statistics from which to make definite deductions, considerable variations from the present standards of average pelvic measurements and fœtal head diameters and other points of interest.

For the last seventeen years the records at the Maternité have been kept with more or less accuracy. But for a great portion of that time the points noted were very incomplete. About three years ago I revised the method of keeping them, and included all the points that are given below. Since then they have been very carefully kept by competent observers and accurate recorders, and we already have several hundred cases in permanent record books. The object of this paper is to note the points which we are keeping records of, with the hope that others who have similar opportunities may be encouraged to utilize them. Although these points were grouped for hospital use, there is no reason why they could not be used in private practice, and, since only a comparatively few cases of labor occur in hospitals, the statistics from private practice would include not only a much larger class of patients, but those from grades of society that can not be found in hospitals. This class difference is of importance especially on account of the difference in the powers of endurance of the upper and lower classes and the difference in their susceptibility to shock. In this country, as in all others, class difference is sufficiently great to make wide differences in treatment necessary under conditions that to him who sees only figures are the same.

At the Maternité the records are kept on blanks printed upon card-boards, and are transferred from these to permanent book forms. In private practice the cards are all that would be necessary, and any printer can get them up for a very small amount. For convenience in referring to the cases, it is best to keep them numbered from one up consecutively. After this are recorded the name, age, nativity, and married or single; the date of the last menstruation; the brief history of previous confinements; external pelvic measurements; the condition of the soft parts, especially the perinæum; and an analysis of the urine. These points include what I have considered it essential to know before labor.

During the progress of the labor, note is made of the following points: The date on which labor began, with the hour and minute as accurately as it can be determined; the length of the first stage (to the full dilatation of the os); lengths of the second and third stages; time and manner of the rupture of the membranes; maternal pulse during and between pains; drugs used, quantity and when; operations performed (this includes manual expression, version, forceps, craniotomy, Cæsarean section, or any artificial method of facilitating delivery); the method of delivery of the placenta, its weight, greatest diameter, length, breadth, and thickness; time of tying the cord, its length, point of insertion into the placenta, its spiral, knots and varicosities. These points are recorded during the progress of the labor, or as soon thereafter as the observations can be made, and are not written out from memory after the event. The objection may be raised against some of these points that they are of no apparent practical value. I would remind such objectors that we as yet know comparatively little of the physiology of pregnancy and labor, and any fact, however trifling it may appear to be, may be the key to some process at present unrecognized.

After labor, the condition of the perinæum and cervix is again noted; the temperature and pulse are taken morning and evening; the analysis of urine passed the first and eighth days after labor; the date of the milk-flow, with special records of the pulse and temperature for that date and for the period just twenty-four hours before. A considerable blank space is left for notes of any unusual occurrence during the puerperal period.

A separate blank is kept for the child, upon which are noted the position *in utero*, and rate of fœtal heart-beat before the completion of labor. After labor are noted the sex, caput succedaneum, respiration, circulation, temperature, weight at birth and on the sixth day, and method of feeding. The measurements made immediately after labor are all repeated on the fourth day, and include the length, and the occipito-frontal, occipito-mental, suboccipito-bregmatic, and biparietal diameters of the fœtal head; the occipito-frontal and the suboccipito-bregmatic circumferences of the head, and the circumferences of the hips and shoulders.

712 North Howard Street.

STAB WOUND OF THE ABDOMEN AND SMALL INTESTINE;

HERNIA AND PARTIAL STRANGULATION OF THE CUT INTESTINE THROUGH THE ABDOMINAL WALL; SUTURING OF THE GUT AND ABDOMINAL WALL.

RECOVERY.

By WILLIAM MARGULIES, M. D.,
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J. S., aged thirty-two, was stabbed in the abdomen (left lumbar region) with a rusty pocket-knife on May 10, 1891.

The wound was an inch and three quarters in length. The knife penetrated one loop of the small intestines at a point opposite the mesenteric attachment. Passing through the gut, it emerged at the mesentery, cutting three quarters of the circumference of the gut and also cutting the mesentery, in a line parallel to the blood-vessels, to the extent of an inch and a half. After receiving this injury he left his assailant and walked about a hundred yards, where he was found by ambulance surgeon Rasbach. On examination, the cut intestine was found to protrude through the wound, being partially strangulated. He vomited several times, but there was no shock, his skin being warm and his pulse good.

The intestine was immediately washed with a solution of bichloride of mercury, 1 to 1,000, sprinkled with iodoform, and dressed antiseptically. After having received a quarter of a grain of morphine sulphate, he was speedily brought to the hospital.

On his arrival his pulse was good, his skin was warm, and there was complete absence of shock. He was put under ether, and the wound slightly enlarged to relieve the strangulation. The cut intestine was then brought forward and sutured with catgut by Lembert sutures, the usual preliminaries of tying both ends of the cut intestine with iodoform gauze and washing it out thoroughly with Thiersch's solution, etc., being observed. Then the wound was enlarged to four inches in order to facilitate the return of the gut and more effectually wash out the abdominal cavity. After having returned the intestines the abdominal cavity was washed out several times with a solution consisting of one half Thiersch's solution and one half boiled water, until the irrigating fluid came back clear. *No iodoform was used on the gut*, because, as in ordinary superficial wounds, when it (iodoform) gets between the incised surfaces it prevents union; so it might get between the adjacent surfaces of the incised intestine and prevent the adhesive process through which we are to expect union and success.

The abdominal wound was then closed by deep catgut and superficial silk sutures, a glass drainage-tube was inserted, the wound was dressed antiseptically, and an abdominal bandage was applied.

There was no shock following the operation. The next day the patient complained only of a little local tenderness over the region of the wound. Temperature, 101°. On the second day after the operation the temperature fell to 100°, and on the following day to 99·5°, at which it remained for ten days, when it became normal.

During this time the pulse was always good. The drainage-tube was removed on the fourth day. The wound closed rapidly and the patient made an uninterrupted recovery.

On June 8th the patient was discharged, the recovery being complete.

Changes of Address.—Dr. John H. Girdner, to No. 31 West Thirty-eighth Street; Dr. J. H. Wheeler, from Pittsfield, Mass., to No. 87 Prospect Street, Ashtabula, Ohio.

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CONVULSIONS AS A CAUSE OF CEREBRAL HÆMORRHAGE IN EARLY LIFE.

The sudden onset of hemiplegia in early life is in the majority of cases accompanied by convulsions. In most instances the convulsions and the paralysis are due to the same cause. Several recent writers, including Goodhart, Money, and Osler, have expressed the belief that this is not always the case, holding that convulsions may cause a cerebral hæmorrhage which may give rise to paralysis. Henry Ashby, in a paper in the *Practitioner* for June, expresses a like opinion. A child of eighteen months, for example, may be ill with measles or pneumonia, accompanied by a high temperature; severe convulsions set in, followed by hemiplegia, or convulsions may follow an indigestible meal, and when they have ceased a hemiplegia is discovered. The subsequent history of such cases varies. The paralysis may improve or perhaps disappear, but in most cases it persists and the child may become an epileptic. The part played by the convulsions in such cases, whether that of a cause or that of an effect, is a point of much interest. There can be no doubt that the circulation through the brain is greatly disturbed during convulsions—sufficiently, perhaps, to produce rupture of capillary vessels. Venous congestion due to spasm of the respiratory muscles might also be a cause of extravasations.

A case reported by the author is of considerable interest. Nothing unusual was noticed until the child was two years old, when he had a convulsion attributable to indigestion, and two weeks later a more violent convulsion, followed by paralysis of the right arm and leg. For eight years after the first convulsion he was subject to epileptic convulsions, the first symptom usually being a peculiar working of the thumb. The affected limbs were somewhat stiff and slightly flexed. The boy died at the age of twelve years, of tuberculosis. At the autopsy the membranes and surface of the brain were found to be normal. Upon section, an old cyst of large size was seen on the left side in the white substance between the fissure of Rolando and the corpus striatum, and four smaller cysts were found on the right side. Three more cysts were found in the frontal region at lower levels. The spinal cord was normal. There would seem to be reason for the belief that in this case multiple hæmorrhages had taken place, some of which had given rise to the paralysis by destruction of some of the white fibers passing from the motor centers to the internal capsule. It is hardly conceivable that such multiple hæmorrhages could be caused by thrombosis, embolism, or arteritis. It is the author's belief that reflex convulsions caused the hæmorrhages in the brain the occurrence of which gave rise to the paralysis and the epileptoid fits—a theory which does not seem unreasonable.

THE THERAPEUTIC VALUE OF CANNABIS INDICA.

The virtues of *Cannabis indica* are well known to neurologists, and especially to asylum physicians, but the profession generally does not appear to have great confidence in the drug. We are therefore pleased to see a letter in the *British Medical Journal* for July 4th, by Dr. C. W. Suckling, professor of medicine in Queen's College, Birmingham, calling attention to the value of *Cannabis indica* in a variety of morbid conditions. He states that during the last few years he has been accustomed to prescribe it in many affections. In one form of insanity, more common in women than in men, and brought on usually by mental worry, often owing to the illness of a near relative, or by a moral shock, the drug acts almost as a specific. In this affection the patient is depressed and apprehensive, and imagines that animals are after her or that some one is trying to injure her. There are great mental confusion and mental loss, the patient is unable to carry on any conversation, and sometimes is unable to dress herself, the condition being one of acute dementia. The author says that he has notes of several such cases that have been cured with *Cannabis indica* within a fortnight. He usually gives ten minims of the tincture three times a day, combined with iron and strychnine. He prescribes also complete rest and plenty of food. The *Cannabis indica* is an essential factor in the treatment, for without it the rapid recovery does not follow; it seems to remove the mental distress and the restlessness.

Cannabis indica has proved very useful in his hands in the treatment of melancholia and mania. He has also found it of great value in the treatment of chorea when arsenic fails. It may be combined with chloral with advantage in such cases. In migraine the drug is also of great value; a pill containing a quarter of a grain of the extract, with or without the same amount of phosphide of zinc, will often check an attack immediately, and if the pill is given twice a day continuously the severity and frequency of the attacks are often much diminished. The author has met with patients who have been incapacitated for work from the frequency of the attacks, and who have been enabled by the use of *Cannabis indica* to resume their employment. The drug is also a valuable gastric sedative in cases of ulcer of the stomach and gastrodynia. It may be combined with nitrate of silver, and it increases the efficacy of the latter. It is also a valuable hypnotic.

Dr. Suckling omits an important practical point in connection with the use of *Cannabis indica*. We refer to the difficulty of procuring reliable preparations of the drug. We have reason to believe that this difficulty exists in England as well as in this country. This fact probably accounts in a large measure for the distrust of the drug felt by many physicians. They have found its action so uncertain and irregular that they have abandoned its use altogether.

MINOR PARAGRAPHS.

ASTHMA AS A NEUROSIS.

The relation of spasmodic asthma to certain neuroses of early life is considered by Dr. Clouston in the *Edinburgh Medical Journal* for May. He believes it should be classed among the functional nervous diseases. This is supported by the sudden influence of subtle changes of atmosphere and climate on the disease. It is due doubtless to disturbance of the pneumogastric centers, which are from hereditary causes unstable and prone to explosive and irritable action. Nervous heredity as a predisposing cause is specially dwelt upon by Salter, Riegel, and Powell, the last-named author having found asthma in some families interchangeable with epilepsy, insanity, chorea, and hysteria. It is shown by Salter's statistics to be largely a disease incidental to the period of growth and development. Among his two hundred and twenty-five cases, in over fifty-five per cent. the disease made its first appearance before the age of twenty-five, and in over thirty per cent. it appeared before the age of ten. It is in no appreciable degree incidental to the senile period, for in but eight per cent. of the cases did it begin after fifty.

ANTIPYRINE AS A HÆMOSTATIC.

In the *Mercredi médical* for June 17th M. Périer urges upon our attention the hæmostatic properties of antipyrine dissolved in its own weight of water. During an operation of laryngotomy for the extraction of a foreign body, he says, it sufficed to press upon the wound after each stroke of the scalpel a little wadding soaked in this solution to cause all bleeding to cease, and it was found necessary to apply only two hæmostatic forceps. In staphylorrhaphy also he has found the employment of this agent to abridge the duration of the operation a great deal, and in other circumstances, where Esmarch's bandage was equally inapplicable, the same advantage was obtained. Moreover, he adds this important point, that the employment of this powerful agent did not interfere with primary union. The hæmostatic properties of antipyrine have been remarked before, but, except in epistaxis and some metrorrhagias, the drug does not seem to have been used to any great extent for this purpose. If further experience corroborate the testimony of M. Périer, its extensive employment may be confidently expected.

THE BILHARZIA HÆMATOBIA.

Dr. Brault, of the Lyons School of Medicine, has reported in the *Lyon médical* a case of infection with *Bilharzia hæmatobia* contracted in Tunis, and observed by him at Lyons. All the usual symptoms of the disease were present, the parasite and its eggs being found in abundance. The patient, a soldier, said that numbers of his comrades in the regiment suffered from similar hæmaturia and that none of them had ever been in Egypt or any of the hitherto recognized regions where the parasite abounds. From this it would seem that a new geographical zone where *Bilharzia* reigns has been discovered, that it may be well to recognize in our study of cases of hæmaturia.

SPECIALISM IN RUSSIA.

It is stated in *Vratch* for March 21st that the Ministry of Public Instruction is in favor of changing the present form of granting the degree of doctor of medicine and proposes to graduate the students as specialists and denote the specialty in the diploma. It is proposed to have ten specialties. The medical schools will be asked advice on the subject.

THE NEW YORK POLYCLINIC.

THE tenth annual announcement of this institution, for the session of 1891-'92, has just been published. It differs from its predecessors chiefly in the omission of the attractive illustrations that have served to indicate the improvements of the college and clinic. The last class numbered 462, the largest thus far attending. The announced changes in the faculty and lecturers are comparatively few.

ITEMS, ETC.

A State Society of Railway Surgeons.—The preliminary steps are being taken to organize a State society of railway surgeons in this State. Surgeons throughout the State who are doing railway surgery are invited to give this movement their support. Those feeling an interest in the organization of such a society may address Dr. George Chaffee, No. 201 Forty-seventh Street, Brooklyn.

The Death of Dr. Thomas L. Smith, a retired naval surgeon, occurred in Brooklyn on the 14th inst. The deceased was ninety-one years old. He was commissioned in 1828 and retired in 1870. He was fleet surgeon during Commodore Perry's expedition to Japan, and in 1862 was made medical director. He was an alumnus of the College of Physicians and Surgeons, of the class of 1822.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from August 9 to August 15, 1891:*

BAILY, JOSEPH C., Lieutenant-Colonel and Assistant Medical Purveyor. Granted one month's ordinary leave, in extension of sick leave.

GANDY, CHARLES M., Captain and Assistant Surgeon, will, upon the final adjournment of the Army Medical Board, resume his leave of absence.

DE WITT, THEODORE F., First Lieutenant and Assistant Surgeon. Granted sick leave of absence for thirty days.

Death.

COCHRAN, JOHN J., Captain and Assistant Surgeon, died at St. Luke's Hospital, New York city, August 5, 1891.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending August 22, 1891:*

DUBOSE, W. R., Passed Assistant Surgeon. Ordered to duty at Naval Academy, Annapolis.

HARRISON, G. E. H., Surgeon. Detached from Naval Academy, Annapolis, and to wait orders.

WELLS, HOWARD, Surgeon. Ordered for temporary duty at Naval Station, New London.

HOEHLING, A. A., Medical Inspector, PARKER, J. B., Surgeon, and NORTON, O. D., Passed Assistant Surgeon. Ordered to Naval Academy, Annapolis, September 3d, to examine, physically, candidates for admission to the Naval Academy.

Society Meetings for the Coming Week:

TUESDAY, *September 1st:* Elmira Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburgh Medical Association; Medical Societies of the Counties of Franklin (quarterly) and Niagara (Lockport), N. Y.

WEDNESDAY, *September 2d:* Harlem Medical Association of the City of New York (private); Medical Society of the County of Richmond (Stapleton), N. Y.; Medical Microscopical Society of Brooklyn; Bridgeport, Conn., Medical Association.

THURSDAY, *September 3d:* New York Academy of Medicine; Society of Physicians of the Village of Canandaigua; Brooklyn Surgical Society; Obstetrical Society of Philadelphia.

FRIDAY, *September 4th:* Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *September 5th:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Book Notices.

Practical Treatise on Electricity in Gynæcology. By EGBERT H. GRANDIN, M. D., Chairman of the Section in Obstetrics and Gynæcology, New York Academy of Medicine, etc., and JOSEPHUS H. GUNNING, M. D., Instructor in Electro-therapeutics, New York Post-graduate Medical School and Hospital, etc. Illustrated. New York: William Wood & Co., 1891. Pp. 180. [Price, $2.]

THIS little work can be recommended to the profession as a safe guide in electro-therapeutics in diseases of women. The authors have succeeded fairly well in carrying out the aim expressed in the preface of giving an unbiased estimate of the value of electricity in gynæcological therapeutics. The clinical portions especially deserve the highest recommendation for their clearness, elegant diction, and moderate tone. If all workers in this field of therapeutics were as careful in giving a just estimate of their work, the treatment of pelvic affections by electricity would rapidly gain in favor. We regret that we can not speak in such high terms of praise of the scientific portions. They leave much to be desired in the way of clearness and conciseness. But it must be remembered that the science of electrology is a difficult subject to handle. In view of another edition in the near future, we should like to draw attention to a few points that have struck us as misleading. For example, the term "galvano-faradization" for the respective use of galvanism and faradization immediately following each other; the statement that the application of galvanism according to Apostoli's method is entirely free from pain; and that women become accustomed to the passage of the electrical current. It has been our experience that the tolerance of the same patient will vary greatly at different times.

BOOKS, ETC., RECEIVED.

Locating the Ball in a Case of Gunshot Wound in the Cervical Region. By J. J. M. Angear, B. Sc., M. A., M. D., Chicago. (Read before the Chicago Pathological Society, June 8, 1891.) [Reprinted from the *Journal of the American Medical Association.*]

The Ethics of Experimentation upon Living Animals. By Stephen Smith Burt, A. M., M. D. [Reprinted from the *Post-graduate.*]

Laparo-hysterorrhaphy as a Means of Cure of Cases of Extreme Prolapse or Retro-displacements of the Uterus. By W. J. Asdale, M. D., of Pittsburgh, Pa. [Reprinted from the *Journal of the American Medical Association.*]

The Motive and Method of Electricity in Pelvic Inflammation. By George F. Hulbert, M. D., St. Louis, Mo. [Reprinted from the *Weekly Medical Review.*]

Five Cases of Removal of the Jaw for Tumor. By William D. Hamilton, M. D., of Columbus, Ohio. [Reprinted from the *Journal of the American Medical Association.*]

Bacteriology and Preventive Medicine. By Stephen Smith Burt, A. M., M. D. [Reprinted from the *Post-graduate.*]

Somnal. A Hypnotic. By Irving D. Wiltrout, M. D., Hudson, Wis. [Reprinted from the *Northwestern Lancet.*]

A Plea for the Scientific Study of Insanity. Being the Substance of Addresses delivered before the Royal Academy of Medicine of Ireland and the Medical Institution of Liverpool. By J. Batty Tuke, M. D., F. R. C. P. Ed.

Hysteria. By A. F. A. King, M. D., Washington, D. C. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children.*]

Ventral Hernia: a Plea for Extraperitoneal Operation, with Case. By George M. Edebohls, M. D., New York. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children.*]

The Direct Treatment of Diseased Tubes and Ovaries. By A. V. L. Brokaw, M. D., St. Louis. [Reprinted from the *Medical Mirror.*]

Extirpation of the Kidney for an Enormous Myxosarcoma in a Child aged Three Years and Eight Months. By A. V. L. Brokaw, M. D., St. Louis. [Reprinted from the *Medical News.*]

Some Practical Points in the Technique of Abdominal and Pelvic Surgery. By A. V. L. Brokaw, M. D., St. Louis. [Reprinted from the *St. Louis Courier of Medicine.*]

The Treatment of Chronic Purulent Otitis Media by Excision of the Carious Ossicles and Removal of Obstructions in the Tympanic Attic, with a Report of Three Cases. By Christopher J. Colles, M. D., of New York. [Reprinted from the *American Journal of the Medical Sciences.*]

Some Remarks on One Phase of Puerperal Sepsis. By Edwin Walker, M. D., Ph. D., Evansville, Ind. [Reprinted from the *Medical Mirror.*]

Biografía del Doctor Jose Manuel de los Rios. Por el Señor Don Jose Maria Manrique.

On Painful Menstruation. The Harveian Lectures, 1890. By Francis Henry Champneys, M. A., M. D. Oxon., F. R. C. P., Physician Accoucheur, and Lecturer on Obstetric Medicine at St. Bartholomew's Hospital, etc. London: H. K. Lewis, 1891. Pp. viii–88.

Transactions of the Medical Society of the State of New York, for the Year 1891.

Linear Craniotomy for Defective Mental Development. By William H. Morrison, M. D., Philadelphia. [Reprinted from the *Medical Record.*]

Illustrative Cases of Congenital Club-foot. By H. Augustus Wilson, M. D., Philadelphia. [Reprinted from the *Annals of Gynæcology and Pædiatry.*]

Leçons cliniques sur les maladies mentales. Le délire chronique. Par V. Magnan, Médecin en chef à l'asile Sainte-Anne, etc. Recueillies par MM. les Drs. Journiac et Sérieux. Paris: E. Lecrosnier et Babé, 1891. Pp. 261 to 377. [Publications du *Progrès médical.*]

Recherches sur les extraits liquides retirés des glandes et d'autres parties de l'organisme et sur leur emploi, en injections sous-cutanées, comme méthode thérapeutique. Par M. Brown-Séquard et M. A. D'Arsonval. [Extrait des *Archives de physiologie.*]

State Board of Health. Report of Willis G. Tucker, M. D., Ph. D., Analyst of Drugs. [Extract from the *Eleventh Annual Report.*]

Transactions of the Thirty-fourth Annual Session of the Medical Association of the State of Missouri, held at Excelsior Springs, Mo., May 19, 1891.

Procédé nouveau de colpo-périnéorrhaphie dans les déchirures du périnée et de la cloison recto-vaginale. Par le Dr. J. A. Doléris. Communication à la Société obstétricale et gynécologique de Paris. [Extrait des *Nouvelles archives d'obstétrique et de gynécologie.*]

Miscellany.

The Congress of American Physicians and Surgeons.—The second triennial session meets in Washington, D. C., September 22d to 25th, inclusive. It is composed of the members of those national medical societies which are given below, and of foreign guests specially invited by the executive committee. To enable a physician residing in the United States to become a member of the congress, with the right to participate in its proceedings, it is necessary that he be a member of one of these constituent national societies. A physician may be accredited as a visitor to the congress by any one of the constituent societies. The certificate of the secretary of one of these societies to the effect that he is thus accredited will enable him to register upon payment of the registration fee, which registration will entitle him to a card of admission to the president's reception and to a copy of the *Transactions* of the congress, but not to take part in the deliberations of the congress.

The following are the names of the constituent societies in the order of date of their organization, and the names and addresses of their respective secretaries, to whom inquiries as to mode of obtaining membership should be addressed: American Ophthalmological Society, secretary, S. B. St. John, M. D., Hartford, Conn.; American Otological Society, secretary, J. J. B. Vermyne, M. D., New Bedford, Mass.; American Neurological Association, secretary, Græme M. Hammond, M. D., 58 W. Forty-sixth Street, New York; American Gynæcological Society, secretary, H. C. Coe, M. D., 27 E. Sixty-fourth Street, New York; American Dermatological Association, secretary, George Thomas Jackson, M. D., 14 E. Thirty-first Street, New York; American Laryngological Association, secretary, Charles H. Knight, M. D., 20 W. Thirty-first Street, New York; American Surgical Association, secretary, J. R. Weist, M. D., 118 N. Eighth Street, Richmond, Ind.; American Climatological Society, secretary, J. B. Walker, M. D., 1617 Green Street, Philadelphia; Association of American Physicians, secretary, Henry Hun, M. D., 33 Elk Street, Albany; American Association of Andrology and Syphilology, secretary, J. A. Fordyce, M. D., 66 Park Avenue, New York; American Orthopædic Association, secretary, John Ridlon, M. D., 337 W. Fifty-seventh Street, New York; American Physiological Society, secretary, H. Newell Martin, M. D., Baltimore; Association of American Anatomists, secretary, D. S. Lamb, M. D., 800 Tenth Street, Washington; American Pædiatric Society, secretary, W. D. Booker, M. D., 851 Park Avenue, Baltimore.

All physicians are invited to attend the meetings of the congress and the public meetings of the societies, but only those may register who are members, specially invited guests, or visitors accredited through the secretaries of constituent societies. The registration office will be in parlors 1 and 2 of the Arlington Hotel. From this office the mail of members and invited guests will be distributed, and here the city address of each member, guest, and accredited visitor can be ascertained. All members, invited guests, and accredited visitors should register as soon as possible. A registration fee of five dollars will be required of all members and accredited visitors. Invited foreign guests will register, but will pay no registration fee. A copy of the published *Transactions* of the congress will be sent to all members and to each invited guest and accredited visitor who is registered. Only those who register, and the ladies accompanying them, will be admitted to the reception of the president of the congress. It is recommended that members effect registration in advance of the meeting by filling out the blank certificates of registration which will be sent to each member about September 10th, and forwarding these certificates, with the requisite fee, to Dr. John S. Billings, treasurer of the congress. The sessions of the congress will be held from 3 to 6 P. M., daily, in the Main Hall of the Grand Army Building, 1412 and 1414 Pennsylvania Avenue.

The sessions of the societies will be held according to the programmes of each, as follows: American Ophthalmological Society, Ladies' Parlor, No. 2, Arlington Hotel; American Otological Society, Ladies' Parlor, No. 1, Arlington Hotel; American Neurological Association, Parlors 182 and 183, Arlington Hotel; American Gynæcological Society, Lecture Hall, Columbian University, corner Fifteenth and H Streets, N. W.; American Dermatological Association, Parlor, The Shoreham; American Laryngological Association, Parlor A, Arlington Hotel; American Surgical Association, Main Hall, Grand Army Building, 1412 and 1414 Pennsylvania Avenue; American Climatological Association, Hall No. 2, Grand Army Building, 1412 and 1414 Pennsylvania Avenue; Association of American Physicians, Hall No. 1, Grand Army Building, 1412 and 1414 Pennsylvania Avenue; American Association of Andrology and Syphilology, The Shoreham; American Orthopædic Association, New Reception Room, Arlington Hotel; American Physiological Society, Parlor 181, Arlington Hotel; Association of American Anatomists, Hall No. 3, Grand Army Building, 1412 and 1414 Pennsylvania Avenue; American Pædiatric Society, Parlor 206, Arlington Hotel.

The president of the congress, Dr. S. Weir Mitchell, of Philadelphia, will deliver an address on Wednesday evening, September 23d, at 8 P. M., On the History of Instrumental Precision in Medicine. Members of the American Surgical Association and of the Association of American Physicians will conjointly entertain their foreign guests at a dinner at the Arlington Hotel, on Thursday, September 24th, at 8 P. M. The American Gynæcological Society will give a dinner at the Arlington Hotel on Thursday evening, September 24th. The American Orthopædic Association will give a dinner at the Hotel Arno on Thursday evening, September 24th. The American Laryngological Association will give a dinner at the Hotel Arno on Thursday, September 24th, at 7 P. M. The American Pædiatric Society will give a dinner at the Arlington Hotel on Thursday evening, September 24th. The American Dermatological Association and the American Association of Andrology and Syphilology will, conjointly, give a dinner on Tuesday evening, September 22d. The American Neurological Association will give a dinner at the Hotel Arno on Thursday evening, September 24th. The American Climatological Association will give a dinner, the time and place to be announced hereafter.

A number of distinguished physicians and surgeons from abroad have accepted the invitation to attend, among whom may be named Mr. B. E. Brodhurst, Mr. Thomas Bryant, Mr. A. E. Durham, Mr. Reginald Harrison, Sir William MacCormac, Mr. Howard Marsh, Dr. William M. Ord. Mr. Frederick Treves, and Mr. U. Pritchard, of London; Mr. Robert Jones, of Liverpool; Dr. W. T. Gairdner, of Glasgow; Mr. E. H. Bennett and Professor J. J. Cunningham, of Dublin; Professor John Chiene and Dr. J. Battey Tuke, of Edinburgh; Mr. G. A. Wight, of Manchester; Dr. F. Beely and Professor H. Krause, of Berlin; Professor Curschmann, of Leipsic; Professor Hoffa, of Würzburg; M. Emil Javal, Dr. Löwenberg, Dr. Pozzi, and M. Paul Redard, of Paris; Dr. von Mozengeil, of Bonn; and Dr. Rafael Lavista, of Mexico.

As other societies will meet in this city during the congress week, it will be prudent for members and visitors to secure hotel accommodations in advance. The Arlington Hotel offers accommodations at the rate of four dollars a day, and the Hotel Arno at three and four dollars a day on the American plan, or one dollar a day for room only, on the European plan. The committee will take pleasure in answering any inquiry relating to the local arrangements of the congress.

Officers of the Congress.—President, S. Weir Mitchell, M. D., of Philadelphia; vice-presidents, *ex officio*, presidents of constituent societies; chairman of the executive committee, William Pepper, M. D., of Philadelphia; treasurer, John S. Billings, M. D., of Washington; secretary, William H. Carmalt, M. D., of New Haven; committee of arrangements, Samuel C. Busey, M. D., chairman, 1545 I Street, N. W., Washington; John S. Billings, M. D., Army Medical Museum, Washington; W. W. Johnston, M. D., 1603 K Street, Washington; R. T. Edes, M. D., 1214 Eighteenth Street, Washington; S. O. Richey, M. D., 732 Seventeenth Street, Washington; J. Taber Johnson, M. D., 1728 K Street, Washington; Samuel S. Adams, M. D., 1632 K Street, Washington; I. E. Atkinson, M. D.. 605 Cathedral Street, Baltimore; C. F. Bevan, M. D., 807 Cathedral Street, Baltimore; Samuel Johnson, M. D., 204 Monument Street, Baltimore; Samuel Theobald, M. D., 304 Monument Street, Baltimore; H. Newell Martin, M. D., Johns Hopkins Hospital, Baltimore; D. Forest Willard, M. D., 1818 Chestnut Street, Philadelphia; D. S. Lamb, M. D., 800 Tenth Street, Washington.

The American Gynæcological Society will hold its sixteenth annual meeting in the lecture room of the Columbian University, corner Fifteenth and H Streets, Washington, on September 22d, 23d, and 24th, under the presidency of Dr. A. Reeves Jackson, of Chicago. The programme includes the following titles: An Address of Welcome, by Dr. Joseph Taber Johnson, of Washington; The Advantages of Mixed Anæsthesia in Gynæcological Surgery, by Dr. John R. Reeve, of Dayton, Ohio; Concealed Accidental Hæmorrhage during Labor, by Dr. Henry C. Coe, of New York; Diffuse Adenoma of the Uterine Body, by Dr. James R. Chadwick, of Boston; The Influence of Season on Recurrent Pelvic Inflammations, by Dr. Frank P. Foster, of New York; The Therapeutic Aspect of Some Ovarian Disorders, by Dr. Edward W. Jenks, of Detroit; Insanity following Laparotomy, by Dr. J. M. Baldy, of Philadelphia; Vaginal Hysterectomy by *Morcellement;* Technique and Indications for Operation, by Dr. Samuel Pozzi, of Paris, France; A Clinical Study of Primary Carcinomatous and Sarcomatous Neoplasms between the Layers of the Broad Ligament, with Report of Cases, by Dr. Joseph E. Janvrin, of New York; The Present and Improving Status of Cæsarean Surgery, by Dr. Robert P. Harris, of Philadelphia; Unique Case of Multiple Neuro-lipomata following Laparotomy, by Dr. H. Marion Sims, of New York; the President's Address; The Treatment of Cancer of the Cervix Uteri by High Amputation; Second Series of Cases, with Additional Report on the First Series, by Dr. William H. Baker, of Boston; The Advantages of Delivery in the Left Lateral Posture, by Dr. Henry J. Garrigues, of New York; The Influence of Imperfect Development as a Cause of Uterine Disease, by Dr. W. Gill Wylie, of New York; The Technique of Vaginal Fixation of the Stump in Abdominal Hysterectomy, by Dr. Henry T. Byford, of Chicago; Can we avoid Mural Abscesses and Ventral Herniæ after Laparotomy? by Dr. Horace T. Hanks, of New York; Some Clinical Testimony as to the Ultimate Results of Removal of the Uterine Appendages, by Dr. Thaddeus A. Reamy, of Cincinnati; Indications for Abdominal Section in the Treatment of Puerperal Pelvic Inflammations, by Dr. R. B. Maury, Memphis, Tenn.; A Study relative to the Functions of the Reproductive Organs in American Indian Women, by Dr. Andrew F. Currier, of New York; The Immediate Closure of Laceration of the Cervix, by Dr. Cornelius Kollock, of Cheraw, S. C.; The Conservative Treatment of Pelvic Tumors and Diseases, by Dr. Eugene Gehrung, of St. Louis; The Anatomical Relations of the Lacerated Perinæum to the Mechanics of its Causation, by Dr. Edward Reynolds, of Boston; In Memoriam—Dr. Fordyce Barker, by Dr. James R. Chadwick, of Boston; Ureteritis in the Female, by Dr. Matthew D. Mann, of Buffalo; The Surgical Treatment of Retroversion and Prolapse of the Uterus, by Dr. Paul F. Mundé, of New York; a paper by Dr. Theophilus Parvin, of Philadelphia; Series of One Hundred Laparotomies; My Mistakes and Failures, by Dr. A. Palmer Dudley, of New York; Laparotomy in Trendelenburg's Posture, with Exhibition of a New Operating-table, by Dr. Clement Cleveland, of New York; The Electrical Treatment of Uterine Fibroids in England, by Dr. George Keith, of Brooklyn; Diabetes Mellitus Gravidarum, by Dr. Henry D. Fry, of Washington; A Successful Porro Operation, by Dr. R. Stansbury Sutton, of Pittsburgh; and An Argument against the Stem-pessary, or so-called Drain-tube, by Dr. Egbert H. Grandin, of New York. There will be a lunch at the Arlington Hotel each day after the morning session, for the fellows and invited guests.

The Treatment of Immature Cataracts.—In an address delivered at the opening of the Section in Ophthalmology of the British Medical Association, in Bournemouth, by N. C. Macnamara, F. R. C. S., surgeon to the Royal Westminster Ophthalmic Hospital, for advance proofs of which we are indebted to the *British Medical Journal*, the speaker dealt as follows with the subject of immature cataract:

With reference to this subject, the question I wish to propose is, Are there any valid reasons why we should not treat immature in the same way as we treat cases of matured cataracts? The answer commonly given to this question is, Yes; because in immature cataracts, a portion of the cortex of the lens being transparent, it follows that during the extraction of such a lens some of this transparent matter is likely to be left in the anterior chamber of the eye, and will probably excite inflammation of the iris with all its consequences. There can be no question as to the fact that violent inflammation of the iris frequently follows injuries inflicted on the eye by which the capsule of the lens is ruptured, and, the soft cortex being liberated, comes to rest on the iris. But in these cases there is often a wound in the outer covering of the eyeball, through which septic matter enters the eye and causes inflammation in the damaged tissues independently of any influence which the soft cortical substance may exercise on the iris. It may be a traumatic cataract is produced without a wound either in the cornea or sclerotic; nevertheless, violent inflammation occurs in the eye, which must therefore have arisen independently of septic matter. In many cases of this description the aqueous gains access to the substance of the lens, and causes its cortex to swell to such an extent that it exerts abnormal pressure upon the angle of the anterior chamber, and leads to symptoms of acute glaucoma. Lastly, in all cases of traumatic cataract, it is most probable, after the capsule is ruptured, that some of its cells escape, and, becoming attached to the iris, grow, exciting hyperæmia and not infrequently inflammation of the iris. But, granting all this, it does not follow that inflammation of the iris results from the presence of aseptic cortical matter in the anterior chamber after the operation of extraction. In every such proceeding we should keep the eye absolutely free of septic matter, and by far the larger portion of the lens, even in immature cataracts being removed, that which remains can not well exercise injurious pressure upon the angle of the anterior chamber. So that, in the extraction of an immature cataract, two of the most frequent causes of inflammation, as met with in the traumatic cases, may be avoided, for we can keep the anterior chamber aseptic, and also avoid intra-ocular tension produced by the pressure of the lens on the spaces of Fontana.

I have long taught that the operation of extraction is successful in proportion to the completeness with which we remove the lens and its capsule from the eye. But I can not understand why soft aseptic lenticular matter should cause iritis, although it remains in contact with the iris; there is no evidence in support of the views held on this subject by Pagenstecker and Graefe, that soft lenticular matter acts chemically as an irritant when applied to the iris. On the other hand, we frequently find clots of blood and pus pass from the anterior chamber, and there is no reason why cortical matter should not be carried away through the lymphatics of the eye. I can understand this soft material plugging the lymphatics in its passage outward, and so, perhaps, impeding the circulation of lymph, and in this way producing glaucoma; but we have ne evidence of any such pathological changes. Doubtless, if the capsule with its living cell protoplasm comes to rest on the iris, it may form connective tissue and produce an after-cataract; but an accident of this kind is as liable to occur in the extraction of a mature as it is after the removal of an immature cataract.

If from considerations such as these, and above all from the results of practice, we arrive at the conclusion that there is no special reason why we should not extract an immature cataract, I need hardly dwell on the great advantage which may be derived from such a proceeding in cases of advancing cataracts in both eyes. How frequently we are consulted by persons who may have reached the age of sixty and upward, complaining of failing sight caused by opacity of the lens. Such a person may be able to get about by himself; he may be able to count fingers with both eyes, and even read No. 4 Snellen with the best eye, and No. 7 with the other eye, nevertheless he can no longer read ordinary type with comfort, and has an ever-present feeling that with the loneliness of advancing years he is doomed to suffer loss of sight. The mental depression arising from a state of things such as this can hardly be realized unless by those who have gone through it. To tell a man in these circumstances that he must wait, it may be for two or three years, until the cataract has fully formed in one eye, is a sentence which none of us would pass if it were in our power to remove the cause of the impaired vision without serious risk to the eye.

The idea I wish to enforce is that it is a mistake to condemn a patient suffering from cataracts in both eyes to wait for an operation until the cataract in one eye has become matured. I would go a step further, and state my conviction that the results following the extraction of immature cataracts are more favorable on the whole than those of fully formed cataracts, because in the former the lens escapes from the eye with less damage to surrounding structures than it does when a large, hard cataract has to be extracted. But, in making this statement, I would guard it to the extent that I hold it necessary for the successful extraction of an immature cataract that a sufficiently large opening should be made in the cornea to allow the lens to pass through it with ease. That an iridectomy is performed, and this is best done at the time of the extraction. Lastly, after rupturing the capsule of the lens, gentle and continued pressure with the curette must be made upon the lower portion of the cornea, the curette following up the lens as it passes outward through the section made in the cornea. Unless the cataract, in its passage outward, is followed up in this way, it is apt to get entangled by the iris or between the lips of the wound, and some of its cortex with the cells lining the capsule remain in contact with the iris.

I do not propose to prop up the views I have expressed by parading before you the results of my own practice, but I am much indebted to my assistant, Mr. Urquhart Black, for a list of cases and their result, which he has carefully compiled for me. The study of these cases has been useful, in that it reminds me of patients who have been under my care, and enables me confidently to recommend the proceeding, which is far from being a novel one, of extracting an immature cataract when both eyes are affected, so soon as the patient is inconvenienced by the increasing opacity of his lenses. I make the degree of impairment of vision depending on the changes in the lens my guide as to the advisability of recommending extraction rather than the stage of maturity to which the cataract has arrived.

Among the upper classes, especially those over sixty-five years of age, I believe it is safer, having first applied a solution of cocaine to the eye, to get a thoroughly competent person to administer an anæsthetic to the patient before operating. If an anæsthetic is administered the eyelids should, after the operation, be smeared over with an ointment of vaseline and iodoform, and a carefully adjusted pad of antiseptic wool applied over the eye with a linen bandage, our object being to keep some pressure on the eye for twelve hours, or until all inclination to sickness has passed away, when a light cotton pad and elastic bandage should be substituted for the first dressings. Unless symptoms arise indicating the use of atropine, eserine, or cocaine, I never drop a solution of either of these drugs into the eye after the operation for extraction. The patient can sit up on the third day after the operation, but I am sure that the greater the care we take of the eye, for at least a fortnight, the better will be the result.

Recent Advances in the Treatment of Tuberculous Diseases of the Joints was the subject of the address at the opening of the Section in Surgery of the British Medical Association at its recent meeting in Bournemouth, by John Ward Cousins, M. B. Lond., F. R. C. S., senior surgeon to the Royal Portsmouth Hospital and to the Portsmouth and South Hants Eye and Ear Infirmary. We are indebted to the *British Medical Journal* for advance proofs of the address, which was as follows:

Historical Notes.—During the past thirty years very remarkable development has taken place in all departments of our art, and although I think the expansion of our knowledge in connection with diseases of the joints has been less brilliant than in many other directions, still it has not been less radical as regards the system of treatment. Until the time of the late Sir Benjamin Brodie confusion and uncertainty surrounded this class of disorders, but by the labors of this distinguished surgeon many of these diseases were disentangled from each other, and the affections of the articulating apparatus, which had been grouped together under the common designation of "white swelling," were clinically separated. In the fourth edition of his work on *Diseases of the Joints*, published in the year 1836, he graphically described tuberculous disease of the bones as commencing by the deposition of a transparent material in the cancelli, and afterward undergoing transformation into a yellow cheesy substance. He drew a correct picture of the slow progress of the inflammation, the caries of the bone, the recurrent centers of suppuration, and the final termination either in imperfect ankylosis or complete disorganization of the joint, associated too often with pulmonary disease or some other visceral affection.

Brodie and Liston investigated the morbid alterations in articular cartilage and synovial membrane. They regarded the cartilages as prone to primary alterations of structure, and they initiated the doctrine that suppuration was a rare result of their primary ulceration, and that it took place only in the advanced stages of the disease, with caries of bone and destructive changes in the synovial membrane. They regarded the presence of capillaries as an essential condition of the inflammatory process, and they labored to demonstrate the vascularity of cartilage in disease. The pathological doubts and difficulties of these eminent surgeons occupied the attention of many of their followers, and their clinical observations were marked by clearness and accuracy, but their minds were prevented from forming correct interpretations of their facts by their strange prejudices and imperfect views of the healthy and morbid processes.

Some of the problems surrounding this structure were, however, at length solved by the labors of Redfern, Goodsir, and Rainey. These observers clearly demonstrated the changes which took place in cartilage by the perverted activity of disease. They asserted that it remained entirely non-vascular, and that its disorganization was always accompanied by changes in the size and form of the corpuscles, and the softening and breaking up of the intercellular substance. During the process of repair they discovered that fibrous tissue has formed, and that into this new substance vessels were projected from the vascular system of the bone and synovial membrane, and thus the difficulties concerning the vascularity of inflamed cartilage were cleared away.

The Old Pathology of Tubercle.—The loss of substance in articular cartilage long occupied a prominent place in the pathology of joint disease, and observations on the wear and tear of this texture in the joints of men and animals were utilized in support of a mechanical theory of incipient disease. At length, however, these narrow doctrines languished under the expanding power of broader views. The belief soon became general that joint disease could have an origin in any of the joint structures, and that most frequently the error commenced in the bone or the synovial membrane. In a large proportion of chronic affections the morbid changes were found to be the results of a peculiar inflammation, attended by the deposition of a semi-transparent exudation, which had a tendency to unhealthy suppuration and to undergo fatty transformation. Pathologists diligently studied the scrofulous affections of bone, and for a long period of years the essential element in the process was described as a deposit of tubercle—a formation of low type, which sooner or later excited destructive changes in the surrounding structures. In one case a synovitis issued in a gelatinous degeneration which ultimately extended to the bone and cartilage; in another case the deposition of tubercle in the cancellous structure caused an expansion of the bone which insidiously progressed toward softening and caseous changes, inflammation of the fibrous capsule of the joint, and hopeless destruction by suppuration and caries.

The Scrofulous Diathesis and Tubercle.—Now, the universally accepted theory of all these changes was the unfortunate possession of a bodily or constitutional condition which was styled the strumous cachexia. This was explained as an altered direction of the normal nutrition of the system, which could make itself visible on slight provocation in any of the structures or organs of the body. Scrofula was regarded as an inherited or acquired constitutional condition, which might at any moment assume the appearance of a distinct tuberculous disease. On the other hand, tuberculosis was always manifested by a wider departure from normal nutrition, and presented new and lowly-organized formations which were deposited somewhere in the organism in the course of chronic strumous inflammation. Virchow described scrofula as a disease of the lymphatic system, and tubercle as a new product derived from the lymphatic elements of connective tissue.

Universally, then, tuberculosis was defined as an inheritance very variable in individuals; at the same time, outside influences were recognized as powerful factors in kindling the smoldering flame into activity. For many years the nature of tubercle received profound investigation, and on every hand the results of research tended to establish the time-honored theory. The microscope failed to detect in it a specific element. All the histological constituents were in turn considered the essential ingredient in the deposit. Cells and granules, epithelial elements, and cells of giant form were searched for some characteristic quality. Some of them appeared imbedded in a fine homogeneous stroma, while others were either shriveled or drowned in particles of oil or else buried in molecular matter. The morbid changes in bone were searched over and over again, but in the process of degeneration and caseation only negative elements were discovered. In one part the osseous structure was observed undergoing destruction; in another, the osteoblasts were at work forming masses of protecting bone. With one voice the microscopists declare that they could find no specific element, and that tubercle was so indefinite in structure that it could be recognized by negative rather than by positive characters.

Now, these were the opinions which for more than half a century were confidently taught in all the schools. Surely the experience of our day is sufficient to convince us that there is no part of our pathology which may not be transformed, and no theory which may not be pulverized by progress. These doctrines were considered orthodox for many years, and by the profound investigations of many eminent men all difficulty appeared to have passed away. Tubercle had been examined by the best observers in the civilized world; thousands of clever eyes had gazed at it with intense persistency and curiosity, and with a remarkable unanimity they pronounced the opinion that it really contained nothing but cells.

The Modern Pathology.—In the year 1882 the whole pathology of tuberculosis underwent a great evolution by the complete demonstration of the life-history of the tubercle bacillus. The disease occurring in any tissue of an organism must now be regarded as a specific disorder, the bacilli as the direct cause of all the morbid changes, and their presence as the distinctive sign of the disease.

Now it is only by drawing a comparison between the old and the new pathology that we can really decipher the magnitude of the revolution in our conceptions. We no longer fight about the primary seat of the disease, for it is now certain that it may commence in any of the tissues of a joint. At the onset it may be synovial or osseous, and when the origin is in the latter structure it may select its surface or its substance. Strumous disease of the bones and joints is the same disease as tuberculous disease of the bones and joints; for in all these affections a specific deposit can be detected. Tubercle bacilli are never found but in this special product, and wherever the tuberculous tissue is discovered this microbe has obtained a resting-place. Their number may vary in the diseases of different structures, and also at different periods of the same disorder; still, when only a few are present they will be found by careful scrutiny.

The new pathology of tubercle is sustained by a mass of evidence derived from microscopic research, the artificial cultivation of the parasite, and experimental inoculation, so that the old notions which had long surrounded the disease have been numbered with the things of the past. The long-accepted causes, too, have been dislodged from their position, and are rightly grouped as morbid tendencies. The inheritance of constitutional peculiarities, the liability to chronic inflammations, and the susceptibility to external influences are thus regarded as essential conditions which help the microbe to establish itself within the body. Still, these factors are not less potent because the specific character of tuberculosis has been recognized. Hereditary proclivities and physical peculiarities of structure have not fallen into insignificance, but in their new position it will be possible to better estimate their potency.

Hereditary Transmission.—As regards the old doctrine of hereditary transmission, must we abandon it altogether? How is it possible for the disease to be conveyed from the parent to the embryo unless the spores of the bacilli are themselves actually transmitted? The living particles have in themselves no penetrating power, still their vitality is certainly intensified by contact with living tissues. As a general rule they make an entrance into the body by the mucous surfaces, and then their diffusion is secure through the ever-flowing streams of blood and lymph. We know that they find their way into the bones and joints, and there appears nothing likely to prevent them getting entangled with equal ease in the placental structures. I believe, however, that there is at least some evidence in support of the assertion that the microbe can pass freely from the mother to the fœtus.* The great discovery of Koch may have around it many problems yet to be unraveled. It is, however, a fact of history that by his profound research he brought to light from the microscopic elements of tubercle a living atom which no human eye had seen before. Some have been so generous as to call it a lucky hit, but let us remember that the accident happened to a man of untiring energy and prodigious power of mental concentration, and these are qualities as essential for success in science as the full activity of the higher intellectual forces. I regard this power of mental concentration as the noblest element of genius. Do not the histories of men illustrious in science exhibit a passion amid their solitary labors? Every line of eternal truth that has been added to our knowledge, every new fact that has been brought to light from the deep secrets of the universe, every noble success in the onward march of science, every triumph achieved over the mysteries of the natural world, are the offspring of unceasing devotion.

Arrest Possible in the Early Stage.—The modern pathology of tuberculosis has already exercised a salutary influence over surgical treatment and the progress of conservative surgery. Its distinct recognition as a specific and infectious disorder, in all its various manifestations, has placed the hope of arrest on a very different basis to that which it previously occupied under the old constitutional theory. During the early stages of joint disease the morbid action is often localized, and therefore arrest is at least possible. There can be no reason why a joint or a bone should not recover, and the tuberculous infiltration atrophy, and ultimately shrivel into a fibrous scar just like a similar deposit in the apex of a lung. If the number of bacilli found by microscopic examination in a part are to be taken as any indication of the activity of the disease, then repeated observations are favorable to the conclusion that incipient disease in the articulating apparatus is more hopefully situated than incipient disease in the pulmonary tissue.

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* Birch-Hirschfeld and Schmöll, *Beiträge zur path. Anat. und zur allg. Path.*, 1891, p. 429.

It is true that the early arrest of tuberculosis has long been the result aimed at by treatment. Half a century ago Brodie described the slowness of the process. The cure in the advanced stages, he said, began when the sinuses closed and the œdema of the limb subsided, but the morbid changes in the joint generally terminated in more or less ankylosis caused by the destruction of the articulating surfaces. The diseased limb should be kept in a state of perfect quietude; no tthat this alone would restore the bones to a healthy condition, but it would do much to prevent the inflammation extending to other structures. He recommended constitutional treatment, residence at the seaside, nutritious diet, and exposure to fresh air.

We now restrict the term tuberculosis to those local and general changes which are directly caused by the irritation of a specific bacillus. Under favorable conditions, isolated patches of tuberculous formation may undergo atrophy, and the infiltration around them cease to extend. This arrest is the result of the timely death of the micro-parasite, for surely by its destruction alone the morbid action in the tissues can be localized, and the individual delivered from the danger of a diffused tuberculosis. What, then, constitutes the grave difference between this curative process and the insidious progress of the disorder? Does it depend upon the strength of the inoculation and the number and vitality of the bacilli; or is it due to the intensity and persistency of the predisposing conditions or other factors in the causation which may be vital, or chemical or structural peculiarities of blood and tissue? In the light of new facts I think we must admit that the case is really dependent upon the complete destruction of the specific cause within the affected structures. At the same time experience teaches us that arrest is possible, and that this fortunate issue may be obtained by the healthful influence of sunlight, pure air, and good food upon the whole organism. I wish some philanthropic millionaire, for the sake of humanity and science, would try the experiment of submitting five hundred scrofulous children, living in the slums of our large centers and suffering from incipient joint disease, to the renovating power of good food in combination with seaside purity and brightness for at least eighteen months, and I am sure some of them would, by these potent remedies and the application of a simple splint, escape from more serious surgical treatment.

Value of Expectant Measures.—In the management of joint disease we must take care to select the right moment for surgical interference. It is often an anxious question to decide when expectant measures ought to be abandoned. In the early stages the diagnosis may be open to question. Sometimes the threatening symptoms may be traced to a traumatic cause. There may be nothing in the local condition to indicate its specific character, and the general conformation and nutrition may not point to any predisposition to tuberculous inflammation. The affected joint may be swollen and occasionally painful and tender. Its outline may be altered and the normal movements impaired, and these slight indications may be marked by a persistent tendency to recurrence. In some cases the morbid action appears to have subsided and the joint structures to have regained their healthy condition; but this favorable quiescence may be disturbed by the slightest injury, and any trivial accident may rouse again the dormant malady. Occasionally we obtain evidence of arrest many years after the favorable issue has occurred. I have seen several cases in which slight shortening of a limb has not been recognized until puberty, the period of life when the skeleton is in a condition of active development. The osseous deficiency is the result of latent mischief near the growing line, and the remnant of bygone epiphyseal inflammation which happened during early life.

The late Hugh Owen Thomas.—A few years ago strumous children laboring under chronic joint disease were kept in bed for many months, but now expectant treatment can be carried out more hopefully by combining rest and protection of the limb with fresh air and exercise. The management of incipient joint disease has fortunately undergone a silent revolution through the mechanical genius of the late Hugh Owen Thomas, of Liverpool. His surgical appliances are admirably adapted for taking off concussion, arresting friction, and imparting support and protection without pressure; at the same time they are so simple in construction that the patient can adjust them without assistance. Thomas's splints have been utilized by surgeons in all parts of the world, and the name of our old colleague will long have an honorable place in the surgical records of our times.

Tuberculin.—When, a few months since, the celebrated announcement reached us that a new remedy had been discovered which possessed the remarkable power of causing the necrosis of living tuberculous tissue, a new method of arrest appeared probable in recent cases, and material improvement in others of greater severity which would prepare them for surgical treatment. It is not my intention, however, to invade the arena of my distinguished colleague, Mr. Watson Cheyne, who has promised to-day to tell us the results of his elaborate investigations with tuberculin, but I feel bound to mention that although I have used the remedy in many cases of joint and bone disease without decided benefit, it will still receive from me a full and impartial trial. It is certain that it contains an agent which is capable, even in almost an infinitesimal dose, of exciting active changes in the body containing any traces of active tuberculosis. In the chemical aspects of microbial life, and in the complex bodies which are formed by the artificial cultivation of the bacilli themselves, we discern the direction from which we may anticipate future discoveries. I regard the search for a remedy amid the growth of these living particles as a splendid effort to reduce the magnitude of a world-wide pestilence, for which, up to the present moment, no really scientific treatment has ever been propounded. The great German investigator has not yet finished his work; let us patiently wait for his results, and keep ourselves free from prejudice, hoping that his daring assault upon the most deadly of diseases may ultimately be crowned with success.

Surgical Treatment of the Past.—The recognition of the local character of tuberculosis in diseases of the joints has opened up the high road to many of the recent advances in surgical treatment. Sixty years ago these disorders were described by Sir Benjamin Brodie as having their origin in the cancellous structure of the bones, or as a consequence of inflammation extending from the synovial membrane to the osseous tissue. Morbid action, he said, commenced sometimes in one and sometimes in another texture, and in the advanced stages all the structures of the joint became involved in the disease. At that time, however, the surgical treatment was really little else than splints and plasters, incisions and punctures, and at length amputation as a final remedy. The constitutional theory of tuberculosis blocked the road of progress.

Fergusson and Butcher.—Between the years 1830 and 1840, Syme in Scotland, and Liston in London, revived with energy the resection of joints for disease—an operation which had been occasionally performed by British surgeons half a century before. But it was not until Sir William Fergusson had successfully practiced it that excision became an established manipulation on all the joints, and professional prejudices were vanquished. Only a few months since, Richard Butcher, of Dublin, passed away after a long and brilliant career. He labored, too, in his day to resuscitate the practice of excision, and devised the well-known saw especially for joint operations, and this ingenious instrument has certainly assisted the progress of conservative surgery.

Early Efforts.—Until the last few years early operations in joint disease had scarcely received any attention. In 1878, Volkmann, the inventor of the cutting spoon, performed several partial excisions in recent cases of hip-joint disease, but his results did not stimulate him to further trials. Since the year of the pathological revolution (1882) many favorable cases have been recorded, and I feel confident the practice, although still regarded by some as experimental, has already saved many limbs from graver operations.

Advantages of Early Operation.—Whenever the indications for surgical interference are clear, early operation must be attended with many advantages. The risk of delay is always in proportion to the progressive and obstinate character of the disease, and timely aid will often prevent its extension, and at the same time deliver the patient from the danger of deep infection and the development of secondary tuberculous centers. The only hope of cure must depend upon the complete removal of the diseased tissue, and the facility with which this can be accomplished rests entirely upon the extent of the local mischief. The preservation, too, of useful mobility in the joint may be anticipated when the morbid process is well localized, so that the manipulation involves only a limited excision of synovial membrane and a partial division of the fibrous capsule.

Partial Arthrectomy.—For the successful performance of a partial arthrectomy there must be clear evidence of a localized deposit. In some cases children have exhibited very little pain or lameness, but the joint has been in some part swollen, with the capsule thickened and the bones enlarged, but without any indication of softening or suppuration. By a well-directed operation, near the neck of the femur or the head of the tibia, search has been made for a spot of tuberculous infiltration, with the result that a carious cavity has been found and small sequestra successfully removed. Surely these are examples of the enormous gain obtained by early operation.* If the latent disease had not been detected and cut out, the issue must have been irreparable injury of the articulation in every instance, and a more serious manipulation under conditions far less favorable.

Another recommendation for early arthrectomy is the little danger that attends the operation. With ordinary surgical precaution the risk may be fairly considered trifling, even when a portion of bone has to be resected. After a full incision in the most convenient position for exploration and carefully defining the disease, the infiltrated tissue must be excised with the scissors or cutting spoon, and the cavity thoroughly flushed with hot water. To insure rapid union, the surface should be then dried, and the wound closed with deep and superficial sutures. The limb must be kept at rest until the healing process is complete. Up to the present time a great many partial arthrectomies have been performed in this country by different surgeons, but I am not prepared to state the exact proportion of their permanent successes; and it appears to me that a report of the results of early operations from many hospitals would prove at the present time a very valuable record.

Advancing Local Tuberculosis.—The articular cartilages are seldom the seat of primary disease, for, as a general rule, the morbid process has its origin either in the synovial structure or the articular extremity of the bone. When the osseous tissue is the seat of a tuberculous infiltration the evidence of its existence is often wanting until softening occurs within it, and inflammatory reaction takes place around it. As soon as these infective changes reach the synovial membrane they extend to all the structures of the joint. Sometimes they make their way through the superficial cancelli to the outer layer of the bone, and then superficial caries and slow suppuration are the result. At another time the morbid process advances in the direction of the articular cartilage, softening and erosion of this structure follow, and then inflammatory changes which issue, unless checked by surgical treatment, in chronic abscess, caries of bone, imperfect arrest of the disease, and finally ankylosis. Now, in all these forms of advancing tuberculous disease, surgery offers the only scientific method of treatment, and we can safely repeat our incisions, scoopings, scrapings, and cleanings, until the disorder is eradicated and a useful joint preserved.

Sudden Infection of the Joint.—But, instead of a slow disorganization, the tuberculous center may be suddenly discharged into the capsule, diffusing the infective material over the whole synovial surface, and kindling suppurative inflammation with great rapidity. A few months since I performed arthrectomy on a child for acute infection of the knee joint. In 1889 the little patient was under my care, in the Royal Portsmouth Hospital, laboring under a small subperiosteal abscess over the head of the tibia, close to the reflection of the synovial membrane. The swelling was freely incised, and a considerable deposit of caseous material cleaned out with the spoon. The bone was roughened perilously near the articular edge, and the parents were specially warned of the danger. Soon after the child left the hospital the swelling slowly recurred without either pain or lameness. In the month of July last she hurt her knee during a game of play. Acute pain immediately followed the accident, attended with rapid swelling of the joint and fever. Three days after, she was readmitted to the hospital under my care. The knee was at once freely opened on both sides, and the inner incision was carried through the abscess cavity over the head of the tibia. The capsule contained about three ounces of a turbulent fluid with many flakes. The infiltrated synovial membrane was freely excised with scissors, the joint thoroughly cleansed, and the limb carefully placed on a back splint. Irrigation was continued for a week. The child was discharged quite well in January. The movements of the knee are now normal, a result due to immediate treatment and the limited injury of the synovial membrane.

Complete Arthrectomy.—Permit me now to offer a few remarks on the surgical treatment of more advanced cases in which the morbid process is too extensive for any partial operation. In the performance of complete arthrectomy a free division of the ligaments and capsule is necessary for the exploration of all the recesses of the articulation, and the excision of deep infiltrations of the synovial and osseous structures, so that the preservation of only a limited mobility must be anticipated. The whole of the pulpy granulation tissue must be dissected off, and the ligaments and cartilages carefully scraped. It is absolutely necessary to remove every particle of the diseased synovial membrane, and all tuberculous foci in the bones must also be cleanly cut out with the gouge. Care must be taken to prevent any remnants of the infective tissue being left behind on the raw surfaces, and the accidental reinoculation of the disease through the medium of the fresh incisions. I regard the method advocated by Mr. Arthur Barker, of flushing with hot water the seat of operation, to be the best way of carrying out these important precautions, and for the rapid performance of this part of the operation his ingenious scoop and irrigator will be found of great practical utility. The operation of arthrectomy of the hip can be readily performed by the anterior and vertical incision and division of the neck of the femur with the saw, and then the excision of the infiltrated tissues. After a simple protective treatment for a few weeks, and the application of a Thomas's splint during convalescence, the results are often very satisfactory.

Surgical Treatment in the Advanced Stage of Hip Disease.—With reference to the old method of operating in the advanced stages of the disease, after suppuration has been proceeding for months and sinuses have long riddled the soft parts, and when the unfortunate patient has been exhausted by a general tuberculosis, I sincerely hope it will soon be cast into the shade forever by the light of modern progress. It is my experience that these distressing cases recover more frequently by simple measures, consisting of free incision, scooping, irrigation, and drainage, and that the ultimate results are more satisfactory than those which follow the practice of severe and dangerous operations.

Complete Arthrectomy of the Knee Joint.—In performing complete arthrectomy of the knee joint I consider the old horseshoe incision, and an oblique division of the ligamentum patellæ, better than any other method for obtaining free access to the interior of the cavity. The practice of lifting up the tuberosity of the tibia instead of division of the tendon may be found very useful in some cases. It is important to clean carefully the lateral and crucial ligaments, and to avoid damaging the cartilages and articulating surfaces. Sometimes carious bone can be removed with the gouge outside the capsule of the joint. It must always be our object to secure the complete extirpation of the diseased structures, and to preserve as far as possible the mobility of the articulation. Fortunately, the limb is not shortened, and the development of the bones is scarcely impaired. The articulating surfaces are in a great measure preserved, and the operation, when compared with resection of the joint, is attended with less risk of life. After arthrectomy I have seen a sound and useful limb with movement to the extent of 45°, and the patient capable of standing and walking many hours every day without fatigue. So good a result can only be anticipated under favorable conditions and early surgical interference. I have received from my colleagues in different places very varying reports of their successes. Sometimes they claim firm ankylosis, but at other times their operations have issued in weak limbs and joints, tending to serious flexion and displacement. Many of them were, no doubt, too late arthrectomies, and the careful excision of the bony surfaces would have been followed by firmer and better results.

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* Successful cases reported in the *British Medical Journal* by Messrs. Watson Cheyne, A. Barker, and Charters Symonds.

The Old Operation of Excision.—With reference to my own practice, I prefer at once complete resection in all cases marked with old sinuses and the carious remnants of old infiltrations. My method is to freely open the joint and to remove as thin a layer of bone as possible from all the articulating surfaces. The gouge is used for cleaning out any infiltrations, and then the patella is divided vertically with the saw. After cleaning every recess in the capsule, the bones are jammed together as tightly as possible, the periosteum is carefully sutured, and the wound closed, except at the extreme ends of the incision. Now, I do not presume for a moment that my results are exceptionally good, but I beg to submit to you photos of some of my patients upon whom operations were performed many years ago. I have often questioned them with reference to the inconvenience of the ankylosis, and, without exception, they have regarded it with indifference. One patient volunteered the remark that the only annoyance her stiff limb caused her arose from the necessity, when sitting in company, of crossing her legs.

Conservative Surgery in the Advanced Stages of Tuberculous Disease.—I am no advocate for any attempt at conservative surgery in the advanced stages of the disease, not from the dread of deepening the general and local infection from reinoculation through the seat of operation, but rather from the feebleness of the vital power which has been slowly undermined by prolonged suffering and suppuration. The intensity of the disease has been quickened by a chronic septic condition of the system, and it is the danger of its sudden aggravation, even with every possible precaution, which adds to the risk of surgical interference. The micro-organisms of septicæmia, or their poisonous products, exert a marked influence over the course of tuberculosis, for their presence reduces the resisting power of the system, and helps on the local and constitutional spread of the disease.

But it is not only septic infection in its various forms that we have to combat, but every other kind of acute disorder of the blood. Children especially are liable to be attacked with any of the infectious fevers; and these are all attended with peculiar risks. Measles, from its disturbing influence over nutrition, is prominent among the group, for its power of rekindling tuberculous inflammation.

Occasionally, however, I think that my experience has seemed to point in the opposite direction, and that an accidental blood storm has exercised a remarkable effect on the course of the malady. A young woman, who for many years had suffered from old disease of the knee, came under my care in consequence of acute inflammation of the joint, which she attributed to injury. Prior to this event she had undergone a good deal of surgical interference. Some years since I did a plastic operation for her, and in 1887 I performed abdominal section for pelvic suppuration and chronic peritonitis. A few days after her admission to the hospital her distress was so great and the constitutional disorder so acute, that I decided to amputate the leg. She was, however, I think very fortunately attacked with severe erysipelas of the head and face, and after a few weeks' dangerous illness her recovery all round was so remarkable, and the joint symptoms so much reduced, that I did an excision. The wound healed with rapidity, and she is now earning her livelihood on two legs instead of one.

Now, notwithstanding the opinion I have expressed concerning the risk of late operations, exceptions occasionally occur in practice when interference appears to be the better course. There are certainly cases of chronic tuberculous joint disease marked by secondary centers and general infection, and even aggravated by a chronic septic condition of the system, in which the vitality of the tissues and the residue of constitutional vigor appear sufficient to warrant an effort in the direction of conservative surgery.

Permit me to offer you two examples 1. Here is the photograph of a girl taken a few months after excision of the elbow. At the time of the operation she was laboring under partially arrested hip disease with still one discharging sinus, and tuberculous deposit in many parts of the glandular system. She is now able to follow any occupation. 2. This is the likeness of a young woman, an orphan, with strong tuberculous history, upon whom I did a similar operation on a joint riddled with sinuses and surrounded with infiltrations. She had distinct physical indications of pulmonary complication, old disease of the opposite knee, and a persistently elevated temperature. She has now recovered with a useful arm, and is enjoying apparently good health. I am quite aware that these may prove only temporary successes, but it is our duty to look always on the hopeful side. I am, however, quite certain that their future prospects have been improved by surgical interference.

In conclusion, I have endeavored to indicate some of the improvements which have taken place in the treatment of joint affections during the last few years, and to trace this progress to the influence of recent advances in pathology. Our science is destined to progress; before us there are great possibilities. It is true that to-day the pathway of scientific enterprise is still rugged and thorny, but obstruction is often a kindly foe, and prejudices are the secret friends of progress—like the rocky banks in the river's bed, which only display the resistless force of the flowing stream.

In reviewing the progress of the past we must not give way to wonder and surprise, but rather calmly cultivate a spirit of confidence and anticipation, and be ready to accept fresh light from whatever quarter it may fall upon us. May we, like Sir Benjamin Brodie, desire above all things the attainment of the truth, and be ready to pulverize our most cherished convictions and to cast them away forever when truth and progress demand of us the sacrifice.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, September 5, 1891.

Lectures and Addresses.

THE INTRODUCTORY LECTURE

AT THE OPENING OF THE NINETY-FIFTH ANNUAL LECTURE COURSE OF DARTMOUTH MEDICAL COLLEGE, HANOVER, N. H.,

July 15, 1891.

By DAVID WEBSTER, M. D.

"The powers that be" having selected me to give the introductory lecture at this session of the college, it occurs to me that I can not do better than to attempt a brief review of the advances that have been made in ophthalmology during my own professional experience—that is, in the last twenty years. The specialty had made rapid strides in the quarter of a century preceding. Helmholtz had given us the ophthalmoscope, which made it possible for us to diagnosticate with certainty the diseases of the interior of the eye, and had thus opened up to us a large field hitherto unexplored. Von Graefe had substituted his modified linear method of cataract extraction for the one previously in vogue—the old corneal flap extraction—and thus had greatly lessened the risks attending the operation. The same illustrious observer had developed a method for the cure of acute glaucoma, a disease which had always before been uncontrollable by any of the means known to ophthalmic surgeons, and which almost invariably resulted in blindness. In the operation of iridectomy von Graefe gave us an almost certain cure. An enthusiasm had been infused into the study and practice of ophthalmology, and ophthalmic surgeons all over the civilized world were inventing new instruments—many of them, of course, worthless—trying new surgical operations, or reviving old ones for the relief of various ophthalmic ailments, and carefully noting the effects of new remedies as used in ophthalmic practice. Is it any wonder, then, that in the last twenty years many very important improvements have been made in optical instruments, in operative procedures, and in ophthalmic therapeutics?

When I began the study of ophthalmology, as house surgeon in the Brooklyn Eye and Ear Hospital, in the fall of 1869, eserine was rarely used in ophthalmic practice. Its power of contracting the pupil and of producing spasm of the accommodation was already known, and a solution of it was sometimes dropped into the eye for that purpose in cases of mydriasis. Since that time it has become one of our most commonly used and most active and reliable therapeutic agents. In acute and subacute glaucoma it almost invariably relieves the pain, and at least temporarily improves the vision, and puts the eye in a better condition for the operation of iridectomy. We should not know how to treat our cases of ulcer of the cornea without it. We frequently use it with benefit in phlyctenular keratitis and in serous iritis. Most operators drop it into the eye after a "simple" extraction of cataract to contract the pupil and thus to guard against prolapse of the iris.

Homatropine is a product of recent date. It has established for itself a permanent place in the armamentarium of every ophthalmic surgeon. By means of it we secure a rapid and transient dilatation of the pupil and suspension of the power of accommodation, so that in cases where we wish to examine the interior of the eye more thoroughly or to ascertain the refraction of the eye more exactly, we use homatropine, and deprive the patient of the use of his visual organs only for a day or two, instead of for ten days, as we formerly did with the sulphate of atropine.

Pilocarpine is another of those new and useful remedies entirely unknown a few years ago. Like eserine, it has the power of contracting the pupil and the ciliary muscle, but less forcibly. It is used with advantage in non-inflammatory glaucoma, and in all cases in which we wish to produce a mild contraction of the pupil. But its principal use in ophthalmic surgery is by hypodermic injection. In affections of the vitreous, in episcleritis, but more especially in recent detachment of the retina, we often get good results by the use of this drug hypodermically in sufficient doses to cause profuse sweating and salivation. I have seen a case of iritis in which an adhesion of the iris to the anterior capsule of the lens yielded to pilocarpine injections when all other well-tried means had failed.

Jequirity was introduced into ophthalmic therapeutics by De Wecker, of Paris, only some eight or ten years ago. With it we greatly hasten the cure of our worst cases of granular lids with pannus. Formerly the bolder and more venturesome among ophthalmic surgeons inoculated such eyes with gonorrhœal pus or with the secretion of purulent ophthalmia. Such inoculation was sure either to cause the entire loss of the eye or to effect a rapid cure of the trachoma with a clearing up of the vascular cornea. So many eyes were lost by this procedure that it got to be very generally eschewed. But jequirity, if used judiciously in the class of cases referred to, produces all the good effects of such inoculation with a minimum amount of danger, and timid indeed must be the eye doctor who is afraid to use it in such selected cases. Since its introduction into ophthalmic practice the number of perennial cases of pannus seen at our public clinics has been very remarkably lessened.

And while we are speaking of trachoma, it were well to mention an operative procedure that has recently been introduced, and which accelerates the cure of a class of cases hitherto considered particularly obstinate. Who first suggested the operation of "squeezing," or forcible expression of the gelatinous contents of the sago-like elevations of true trachoma, I know not, but I am convinced that, whoever it was, he made a very important advance in ophthalmic surgery. I have performed the operation as described by Dr. H. D. Noyes in his book *On Diseases of the Eye*, and with the forceps described and, I believe, invented by him. By this operation, and judicious subsequent treatment, cases are practically cured in a few weeks which, if treated by caustics or astringents alone, would be just as likely to get worse as to get better, and would probably extend through many months. The operation has to be performed under anæsthesia, as a good deal of violence is done to the conjunctiva, and there is considerable swelling of the eyelids following; but this subsides in a few days, under treatment with iced applications, and the cure is then completed by the judicious use of astringents for a brief period. When we remember how many cases of blindness have resulted from granular disease of the lids with its complications, we hail with pleasure every effectual means of abbreviating the course of the disease and preventing its direful results.

The application of the actual cautery for the cure of ulcers of the cornea has come into general use within the last few years. It seemed to me at first a very severe procedure to apply the red-hot iron to so delicate and sensitive a structure as the cornea, and it was only on the most convincing testimony that I adopted it. There is no longer any reasonable doubt that the course of an ulcerative keratitis may often be cut short by a skillful application of the cautery. Some use the galvano-cautery; some a delicate probe-pointed instrument made of platinum. I generally prefer the latter. It is more easily handled, and, it seems to me, we are less liable to burn too deeply with it, especially if our experience in the use of such instruments has not been very large. The cautery is also used for searing the apex of the cone in cases of conical cornea, and in searing the wound throughout its entire length, where suppurative inflammation has set in after cataract extraction. Great precision is necessary in the use of the cautery, as it is very easy to impair the transparency of the cornea by awkwardly allowing the red-hot instrument to touch other parts than those intended. The operation is not in the least painful if done with the aid of cocaine. I have found that a thorough cauterization of the swelling will often greatly hasten the cure of that generally obstinate disease, episcleritis. I am told that it was an American, Dr. Martin Ash, of San Francisco, who first used the corneal cautery and brought it into repute.

The invention and extensive manufacture of absorbent cotton has greatly simplified the dressing of diseased eyes, or eyes that have been operated upon. In the early years of my professional life much of my time was taken up in picking lint and preparing it for compresses to be used upon eyes which were to be bandaged. I had to cut the sheet-lint of the drug-store into strips an inch to an inch and a half wide, place the strip on my knee, and then with a dull case-knife scrape it off, three or four fibers at a time, and lay them away in light, loose masses, carefully preserving their parallelism. Absorbent cotton makes a far better dressing for the eye, and is abundant and cheap. It is now very generally used instead of sponges in operations upon the eye which occasion very little bleeding. Of course, in enucleations and in plastic operations upon the lids, the bleeding is so considerable that we still have to resort to the use of sponges. And then there is vaseline. What should we do without vaseline in dressing the eye? The pure white vaseline, made by the Cheesborough Manufacturing Company, of New York, is thoroughly aseptic, having been subjected to a very high temperature for several hours before being put up in air-tight tubes. It prevents the lids from sticking together; it prevents the secretions from causing the dressings to stick to the lids. In my earlier experiences I have often consumed half an hour in washing off the lint the first time when an eye had been enucleated. Nay, I have more than once had the patient faint while I was washing it off. Now, after enucleating an eyeball, we wait until the bleeding has nearly stopped, then put on plenty of vaseline, absorbent cotton, and a retentive bandage, and when we want to wash the eye the next day the absorbent cotton almost drops off itself. There is none of that drying of the coagulated blood, almost impossible to soften or dissolve even with hot water.

Cocaine anæsthesia, the discovery of Dr. Carl Koller, then of Vienna, now a lecturer in the New York Polyclinic, is an inestimable boon to the modern ophthalmologist and to his patients. Formerly we did nearly all our operations for cataract, for artificial pupil, for the removal of pupillary membranes, for strabismus, for insufficiencies of the recti muscles, and for pterygium under ether anæsthesia. Now we do them all under cocaine anæsthesia and have the intelligent co-operation of the patient. Any one who has given ether several times a week for years knows how much there is that is disagreeable in connection with its administration, and is profoundly thankful whenever cocaine enables him to operate painlessly without it. In operating upon inflamed eyes we still have to resort to ether, as cocaine has very little effect upon inflamed tissues. We also give ether for enucleations, as the consciousness that his eye is being taken out is too much for almost any patient, even though the operation gives him little pain. Formerly we did slight operations, such as slitting up the canaliculus, removing foreign bodies from the cornea, and excision of chalazion, without any anæsthetic, and often gave the patient considerable pain. Now a drop or two of cocaine solution partially or wholly does away with the pain of these operations. With this most useful of modern discoveries the ophthalmologist does better work than was possible for his predecessors, and with a great saving of time; for it is well known that most operations upon the eyeball require only two or three minutes, while the administration of ether often requires from a quarter to half an hour.

The ophthalmologist is not behind his brethren in other fields of surgery in appreciating the benefits derived from antisepsis or asepsis, which is, boiling it down to its true signification, simply cleanliness—the most scrupulous cleanliness. By means of cocaine and cleanliness we get far better results in all our operations upon the eye and its appendages than our predecessors were able to obtain, although their skill as operators was unsurpassed. We extract our cataracts without iridectomy, generally leaving the eye with a central, circular pupil, and looking as it appeared before the development of the cataract. Such eyes have better resulting vision than those operated upon by the older methods, and it is not at all uncommon for cataract patients to leave the Manhattan Eye and Ear Hospital with vision $\frac{20}{20}$, or normal. Some, indeed, have gone away with vision $\frac{20}{15}$, and one at least with $\frac{20}{10}$, or about twice the average sight of the normal eye.

The ophthalmometer, an invention of Dr. Javal, of Paris, is an instrument of precision which is used as yet by comparatively few, but which is destined to make a place for itself in the office of every ophthalmologist. By means of this instrument we are enabled to determine whether an eye is astigmatic or not. And not only this, but if the eye we are testing *is* astigmatic, we can determine within half a dioptre the amount of the astigmatism and within a degree or two the direction of its axis. This is done independently of any intelligent co-operation on the part of the patient, who is only required to sit in a position in which the surgeon places him and to keep his eyes open and fixed on a certain object.

I have frequently seen the amount and the axis of the astigmatism thus determined within two minutes, whereas I have often spent half an hour or more in arriving at a similar result with the ophthalmoscope and with trial glasses in cases where the patient was not over-intelligent, or in the cases of children and others who had not learned to read. Moreover, there is a class of cases, and a very large one, in which the astigmatism is latent or concealed by the action of the ciliary muscle, and in which it is impossible to measure it with the ophthalmoscope and with trial glasses without the use of a mydriatic. To this class of cases the almost infallible ophthalmometer is just as applicable as to any other, as the presence or absence of accommodation does not affect the curvature of the cornea.

The phorometer, an invention of Dr. Stevens, of New York, is a great aid in determining with accuracy and dispatch the insufficiencies of the various external ocular muscles. Previous to the invention of this instrument the amount of such insufficiencies was only approximated, while we now readily determine them within a degree, or even less. Insufficiencies of the muscles turning the eyes upward and downward were seldom if ever looked for, unless they amounted to an actual paralysis or paresis. Testing for insufficiencies of those muscles now forms a part of the routine examination of the eye in cases where asthenopia, headaches, or functional nervous diseases exist. Although such insufficiencies are undoubtedly generally due to errors of refraction, and are often corrected by the persistent wearing of glasses which correct the ametropia, yet cases not very infrequently come under our observation in which such correction utterly fails to correct the insufficiency, or to relieve the resulting disastrous effect upon the nervous system. In such cases, and after all other means, general and local, have been thoroughly tried without relief, the correction of the insufficiency by means of one or more carefully graduated tenotomies is to be resorted to, and will often effect a cure. The testimony to the relief of asthenopia, headaches, insomnia, nervousness, etc., by intelligently performed tenotomies of the ocular muscles is overwhelming. Such operations are being done with satisfactory results by ophthalmic surgeons all over the land, and the medical literature of the last few years teems with reports of them. On the other hand, I believe that the cases in which failure has resulted have not been so fully and freely reported. It is a mistake to deny that any good can come of an ocular tenotomy. It is an equally grave mistake to maintain that all the ills that flesh is heir to are to be cured by cutting the muscles of the eye. The patients to be operated upon should be judiciously selected, and the operation should be resorted to, as I said before, only after other means have failed.

I have probably omitted to speak of some of the more important advances in modern ophthalmic surgery, but I have said enough to demonstrate to you that ophthalmology is by no means stationary. There is an army of ophthalmologists all working in the same direction, each trying to outdo the other in making improvements in instruments, in the technique of operations, and in the adaptation of new remedies to diseases of the eye. This army is constantly being recruited from the house surgeons and clinical assistants of the many eye and ear hospitals and infirmaries, and from the classes in attendance at the polyclinics and the post-graduate medical schools. When I began the practice of ophthalmology, the opportunities for its study were very few and limited. The eye and ear hospitals turned out half a dozen or more good men annually—men who had served as house surgeon for one year. Dr. Knapp, of New York, had just begun to instruct private classes in ophthalmology, and I was a member of the first class he taught in this country. Now, New York is full and running over with competent men willing and anxious to teach. There are now expert eye doctors, not only in a few of the principal cities, as of yore, but in almost every little city, I might almost say every large village, of the United States.

And now, gentlemen, having wearied your patience while inflicting upon you this somewhat tedious ophthalmological review, let me have the pleasure of bidding you welcome to Dartmouth Medical College, this, the oldest but two of all the medical colleges in the United States, the scene of the stupendous labors of the great Dr. Nathan Smith, of Dr. Dixi Crosby and of his son "Doctor Ben," of Dr. Peaslee, and of other shining lights too numerous to mention.

I am told that the distinguished Dr. Oliver Wendell Holmes was once a teacher here. Let us endeavor to emulate the noble lives of these great men,

And, departing, leave behind us
Foot-prints on the sands of Time!

Under the fostering care and genial guidance of our much-loved Dean Frost, may you all spend a most happy and profitable season in this quiet little nook among the mountains. Here, while you acquire knowledge that will enable you to assist in preserving and improving the health of others, you will find ample means for the preservation and improvement of your own. The cool and pleasant temperature that comes from a high elevation above the level of the sea; the pure atmosphere, unpolluted by the many impurities inseparably connected with city life, and eminently fitted for breathing purposes; the pleasant walks and drives, almost unsurpassed in their loveliness anywhere; and the beautiful scenery, especially as viewed from the summits of the adjacent lofty hills—all conspire to make you healthy and happy, as well as to aid you in the accomplishment of your principal object, that of becoming thorough and learned and skillful members of the medical profession.

Eruption following the Use of Arnica.—"At a recent meeting of the Paris Biological Society, Dr. Dupuy related the case of a patient who was attacked by pseudo-erysipelas in consequence of an application of tincture of arnica. He regarded the fact as very curious, and remembered that oil of rue exerted a similar action."—*Druggist's Circular and Chemical Gazette.*

Original Communications.

EPILEPSIA PROCURSIVA.

By JOHN FERGUSON, M. A., M. D., L. R. C. P.,
DEMONSTRATOR OF ANATOMY AND LECTURER ON NERVOUS DISEASES,
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Epilepsy is a disease that assumes many forms. The motor, sensory, and psychic phenomena are found blended in almost endless variety. In well-marked cases the diagnosis is not difficult, while in those of less definite type this may be by no means an easy task. All will, however, admit that it is very important that an early diagnosis be made, as treatment, to be of most avail, must be commenced before the disease is far advanced, and be pursued with an unusual amount of persistency. Dr. E. C. Seguin, a short time ago, read a very valuable paper, before the Providence Medical Society, on the early diagnosis of some important diseases of the nervous system. The address was published in the *Boston Medical and Surgical Journal*. This address is worthy of careful study.

The form of epilepsy chosen for this article is not so common as some of the other forms. Indeed, judging by the number of cases that have been published so far, it would have to be regarded as rare. I am of opinion that, though this form of epilepsy is not of frequent occurrence, yet it is not so seldom met with as has been generally supposed. The reason why I have arrived at this conclusion was because, in the cases of procursive epilepsy I have met with, they were the forerunners of ordinary epilepsy, or alternated with attacks of the usual character. This conclusion is strengthened by a review of the literature on this subject.

These procursive attacks are a sort of auræ. There is a violent commotion in the psychic processes; a form of deranged and involuntary thinking and acting. There is an epilepsy in the mental processes. This sudden derangement in ideation and the association of ideas deserves the most careful study. These attacks may escape notice and yet cause very serious consequences. Such an attack of mental disturbance is a temporary insanity. During or shortly after these attacks acts of a most violent nature may be committed. There is a close relation between psychic epilepsy and those cases of strict procursive epilepsy where there are no other forms of seizure. There is a turmoil of ideas and sensations, and of the association of these, that leads to involuntary thoughts and actions. In the true psychic form there may be nothing to reveal the existence of epilepsy. In the procursive form there is sometimes only the temporary, short, and aimless run, with confused look and momentary stupor, to declare the existence of the disease.

From a medico-legal point of view these cases are of very great interest. A full knowledge of epilepsia larvata would be of great assistance in the solution of some obscure cases in criminal practice. When we cast our eyes around us, and note how many persons that are now genuine epileptics have suffered from symptoms of an irregular and ill-defined character before their disease declared itself, we can readily understand how others may have only had these premonitory and concealed conditions at the time when these criminal acts were perpetrated. Yet the very existence of such includes the possibility of hallucinations, delusions, and insane impulses. I knew one patient who for several years was tormented with a constantly recurring impulse to kill somebody. Suspecting that this was a variety of epileptic aura, I treated him with bromides, which had the effect of reducing the frequency and intensity of these impulses. He went abroad for nearly a year, a great part of the time being spent on the open ocean. He has ever since carefully avoided overwork and study, and has enjoyed two years' immunity from these seizures. Another patient was tormented with the hallucination of seeing a very small man, about a foot in height, rising up out of the ground in front of him. This miniature man was always dressed in a red coat and had a staff in one hand and a sword in the other. With a hopping gait, the figure approached the patient, and always employed some low-toned and threatening language. This was also regarded as an epileptic aura, and was much relieved by a course of the bromides. In a third patient, a physician of fifty years, who was doing a very large practice and losing a good deal of sleep, there developed a confused condition of thought. He frequently complained of a momentary vertigo and loss of consciousness; or at other times of a desire to rush ahead, as if impelled to do something in a great hurry. Rest, tonics, and bromides restored the health to its proper balance. Here was also a case of incipient epilepsy. I could cite other examples of epileptic aura of peculiar character, but the above-mentioned are sufficient to show how very guarded we must be in dealing with this disease.

Historically considered, procursive epilepsy is an old disease. There have been cases of it noted for three hundred years. Erastus, 1591; Boatius, 1650; Tulpius, 1675; Elmüller and Paullini, 1690–1700; Brescon, 1740–'50—are among the older writers that have mentioned cases that correspond with what we know to be this form of epilepsy. During the present century the cases become more numerous and definite. Trousseau, in his work, gives an undoubted example of epilepsy with distinct procursion. In looking over all recorded cases, a considerable deduction must be made from the number, as many of these cases are no doubt instances of chorea and paralysis agitans. The recorded cases of this variety of epilepsy naturally divide themselves into three groups: 1. Those cases where the procursion constitutes the entire attack. These epileptics perform a short run, or describe a circle, without any other features of the epileptic paroxysm. They rush across the room or around a table or a chair, and again seat themselves without being conscious of the acts they have just performed. 2. The second group contains those cases where the procursion immediately precedes an ordinary attack of epilepsy. In this group the procursion constitutes a sort of aura to the paroxysm that follows it, or may alternate with it. 3. There is the group of cases in which the procursion follows an attack of epilepsy. This type is extremely rare.

I shall now record a few cases of this form of epilepsy.

The first one is that of a child who fell out of his high chair when two years of age. There were vomiting and vertigo following the fall. In a month after the accident the mother noticed that the child would suddenly stare, become flushed in the face, rush forward a short distance, then stand with a fixed look. When this had passed by, the child would move about in its usual manner. Sometimes two weeks would intervene between attacks of the above character, and then on some days he would have as many as a dozen or more. The child was very irritable and intractable. The general health and growth were good. These attacks, gradually becoming more frequent and severe, continued for over a year, when it developed at once with marked intensity into the usual epileptic paroxysm. These latter still continue. This bears out Weinstock's view that these procursive forms usually end in the ordinary epileptic seizures. There was no concurrent cardiac weakness, however, which the above-mentioned author seems to regard as a very frequent condition.

The second case occurred in a young woman of twenty-four. The attacks took place, almost without exception, when she was at table. The face would suddenly become blanched, then flush; the eyes would stare and look vacantly into space. She would rush away from the table for some distance, stand still, sit down, or lie down on a lounge, or quietly return to the table. These attacks had been of frequent occurrence for over two years. No cause could be ascertained. The family history was good. She had been studying music, painting, and languages with much diligence; but it is doubtful if this could be regarded as ætiological. She was wholly unconscious of performing these excursions. Her memory was generally impaired. She cared less for society and interested herself less in her former occupations. She had lost much of her color and freshness. At no time was she ever known to have a regular epileptic paroxysm. Very little improvement was obtained from treatment.

The third case is that of a man about forty-five years of age. He never had any attacks prior to the year 1885. In the spring of this year he acted as a volunteer in the Northwest Rebellion. He says that he had an attack of meningitis while in service. He had undergone a great deal of fatigue, exposure, and excitement. In September of 1885 he had his first attack. These attacks were very well marked examples of running epilepsy. The most characteristic feature was the length of the individual attacks. He would pass into the status epilepticus. In this condition he would run straight ahead for some distance, stand still, then rush on again, and again stand. This act would be repeated many times. One night I was with him for two hours. During this time he made short, rapid runs and short stands. He was entirely unconscious of what he had done. He would rush against a wall or door. There were no other motor disturbances than those of progression and standing. Finally he threw himself down and went to sleep. On another occasion when I was with him during an attack we decided to hold him and put him in bed. For a short interval he would be still. This would be followed by a desire to run, when he would make most powerful efforts to spring up and dash off. After a time the attack passed, and the patient again fell asleep. On the next day he knew absolutely nothing of what had taken place. The attacks latterly became those of ordinary epilepsy. He has become impaired mentally and physically, and is quite irresolute. During the attacks the eyes would stare wildly. He would perspire freely, but there was no flow of saliva or involuntary evacuation of urine or fæces. The face was congested. There were no tonic or clonic spasms on the occasion when he was held, other than the violent efforts made by him to dash away. He never bit his tongue until the fits assumed the ordinary form.

The fourth case is one of much interest. The history of this patient, as told by his elder brother, a clergyman, is to the effect that at the age of seven years the patient began to exhibit spells of absent-mindedness. This continued and increased for about three years, when he was noticed to make short, quick runs, of which he had no knowledge when questioned. In his fifteenth year he had his first attack of regular epilepsy. When he was brought to me, in his twenty-first year, the attacks were very frequent, sometimes several in a day, and rarely more than two or three days' freedom. In one attack which I saw he fell on his face, became rigid, remained in this condition for two minutes, then threw his arms forcibly about, and jerked the right leg up and down a few times. He did not salivate or pass urine or fæces. These movements over, he rose with congested face, wheeled round a number of times in a circle, ran forward and backward several times in a straight line, and then gradually regained consciousness. His disposition was very violent at times.

In this case we have an example of the two forms—namely, where the run is before the epileptic attack, and, later, where it follows the attack. This case also began as one with typical procursion, and became one of the ordinary form, followed by the procursive movements.

The diagnosis of these cases is usually readily enough made. The existence of the fact that the suspected person performs these short runs without an object in view, and that the act of doing so is an automatic, unconscious one, goes a long way toward establishing a diagnosis. Changes in disposition, failure of intelligence, the existence of a neurotic family history, are all useful aids in forming an opinion on the true nature of the case. The occurrence at some time of fright, or the reception of some injury to the head, should be borne in mind. The previous diseases should be inquired into, as there may be ascertained in some cases, as in two of mine, the existence of some trouble affecting the head. The correctness of the diagnosis is a matter of the first importance. On this depend two other questions—the prognosis and the treatment. In all cases of epilepsy the prognosis must be given most guardedly. If the disease has become fully declared, then I most decidedly agree with Dr. E. C. Seguin that we must take a pessimistic view. And so with treatment. To begin early and well is the real key to success in the treatment of epilepsy. For this reason I would urge that the closest attention be given to all cases of absent-mindedness and momentary losses of consciousness. All cases presenting a disposition to do acts of an aimless nature, to make runs, to turn rapidly round a few times, and such like, should receive attention, and the person be placed under watch to determine whether or not such acts are remembered. The loss of consciousness distinguishes procursive epilepsy from the other forms of nervous diseases—such as chorea, paralysis agitans, etc.—in which there is a saltatorial movement. It is quite erroneous to call it a grand chorea, as some writers have done. They are entirely different.

A few words on the pathology may not be out of place. It is quite clear that there must be some real difference between epilepsy with procursion and the ordinary form. In some cases of epilepsy there is always a visual aura. This means that the discharge causing the signal symptom must take place in the areas of the special sense of sight. So, when the signal symptom is a movement of the thumb, the motor center for the thumb must have discharged. In this I follow the views of Hughlings Jackson, which are settled beyond dispute, and which are now received by the ablest observers. When there is a run forward, as the result of the discharge, the discharging center must be of a different nature from that where there are tonic and clonic spasms. Now, when the cerebellum is stimulated, we have movements of a very interesting character. If the posterior end of the superior vermiform process is destroyed, the animal falls backward. If this same portion is stimulated, the animal runs forward, the eyes being fixed in a staring position, and the head held rigidly. Further, we know that the cerebellum, both the lateral halves and the vermiform body, is connected with the cortex of the cerebrum through the tegmentum and the red nucleus. The cerebellum is apprised of the varying postures of the body, and issues impulses for the regulation of its poise. The motor areas of the cerebrum, on the other hand, issue the impulses for the execution of the needed movements. Should these cerebral impulses be excessive, there will be a loss of consciousness, for Hughlings Jackson has shown that an excessive discharge in any part of the cerebral cortex causes loss of consciousness. In the connection between the cerebellum and cerebrum, above stated, we have the machinery by which an excessive discharge in the latter is caused indirectly by a primary excessive discharge in the former. By a discharge of the posterior end of the superior vermiform process an impulse is distributed to cerebral cortical areas that causes a run forward, this being the act that is deemed necessary to balance the body, judging by the impulse coming from the discharging vermiform process to the motor cerebral areas. Normal cerebellar discharges produce normal discharges in the cerebrum; but an excessive and pathological discharge in the cerebellum would cause an excessive discharge in the cerebrum. This, it has just been stated, causes a loss of consciousness. But, on the other hand, if the discharge should take place in either of the cerebellar hemispheres, the poise of the body would be deranged so that the impulses going to the motor areas of the cerebrum would cause rotatory movements, as is seen in some procursive epileptics. From my own experiments on animals, I do not think that the cerebellum originates movements; but I do believe that it supplies some form of energy to the lower spinal centers on which muscular tone largely depends. If, therefore, a discharge should take place in the gray matter of the cerebellum, the same effects follow as if this discharge had been brought about by afferent impulses; and the same movements will follow as if the body had been falling actually to right or left, backward or forward. It is in this way that a pathological discharge in the cerebellum gives rise to corresponding movements that require the activity of cerebral cortical centers for their performance. The electrical experiments of Purkinje and Hitzig have proved that stimulation of the cerebellum causes vertigo and disturbance of the relation of self to surroundings. In a case of my own, where there was very obstinate occipital pain, I used a galvanic current on one occasion of thirty-six cells McIntosh, from one mastoid fossa to the other. There were sensations of vertigo, spasm of the ocular muscles, convulsive movements of the arms, and loss of consciousness. In this case my own opinion is that the stimulation of the cerebellum acted on certain cerebral areas associated with it, and originated the chain of symptoms just stated. In the sense, then, that the cerebrum may be acted upon by the cerebellum, I believe we may have epilepsy of true cerebellar origin, the discharge first occurring in this portion of the central nervous system. Nothnagel, Hitzig, and many others deny that there is an epilepsy of cerebellar origin. Taking the view above stated, I maintain that there may be such a condition. That gray matter in any part of the nervous system may discharge there is no good ground to doubt; and when a certain portion of gray matter thus discharges, the function governed by it will be set in operation. The gray matter for the movements of the hand discharges and there will be movements of the hand; or, of the sense of sight, there will be auræ of light; or, of hearing, and there will be those of audition. In like manner, if the centers for the position and poise of the body discharge, there must be associated movements to harmonize; and the person may be afflicted with retropulsion, propulsion, or lateropulsion. In proportion to the intensity and extent of this discharge will be the loss of consciousness and the variety and extent of the involuntary movements.

264 COLLEGE STREET.

THIRTY-FIVE HUNDRED COMPARATIVE OBSERVATIONS ON
THE PULSE, RESPIRATION, AND TEMPERATURES OF CHILDREN.

By R. W. SHUFELDT, M. D.

PREFATORY REMARKS.

For six or seven months prior to my graduation at the School of Medicine of Columbian University, of Washington, D. C., in March, 1876, I had charge of one of the wards in the Children's Hospital of St. John's Episcopal Church of that city. The average number of inmates of the ward during the time was fifteen, and they were of both sexes and of all ages between three and thirteen years. Hygienic conditions of the ward were invariably good, the management excellent, and the nursing always of the best. My morning and evening visits were of sufficient duration to admit of my taking and recording the state of the pulse, the number of respirations, and the temperatures of six of those children—three of whom were boys and three girls.

These observations were made comparative with the temperature of the ward noted at the corresponding times, and with such other atmospheric changes in their environment as would be likely to influence the states or other physical conditions of my juvenile charges. During the last two days of May and the months of June, July, and August, 1875, whether those children were sick or well, I allowed nothing to interfere or prevent my accurately recording all the observations I have named. They were

Patient H.F.

Casella's Thermom. No 19613

Chart. 1.

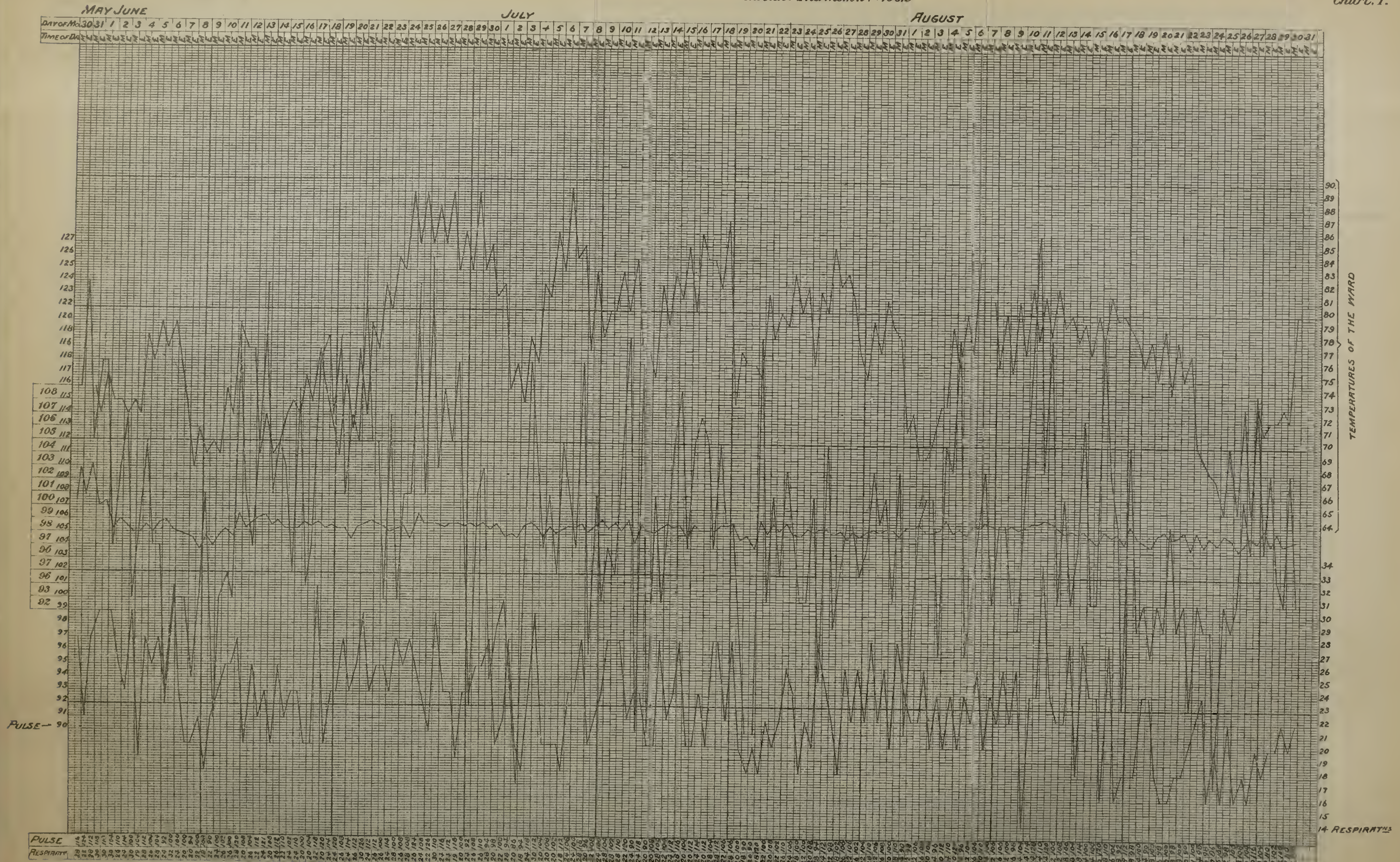
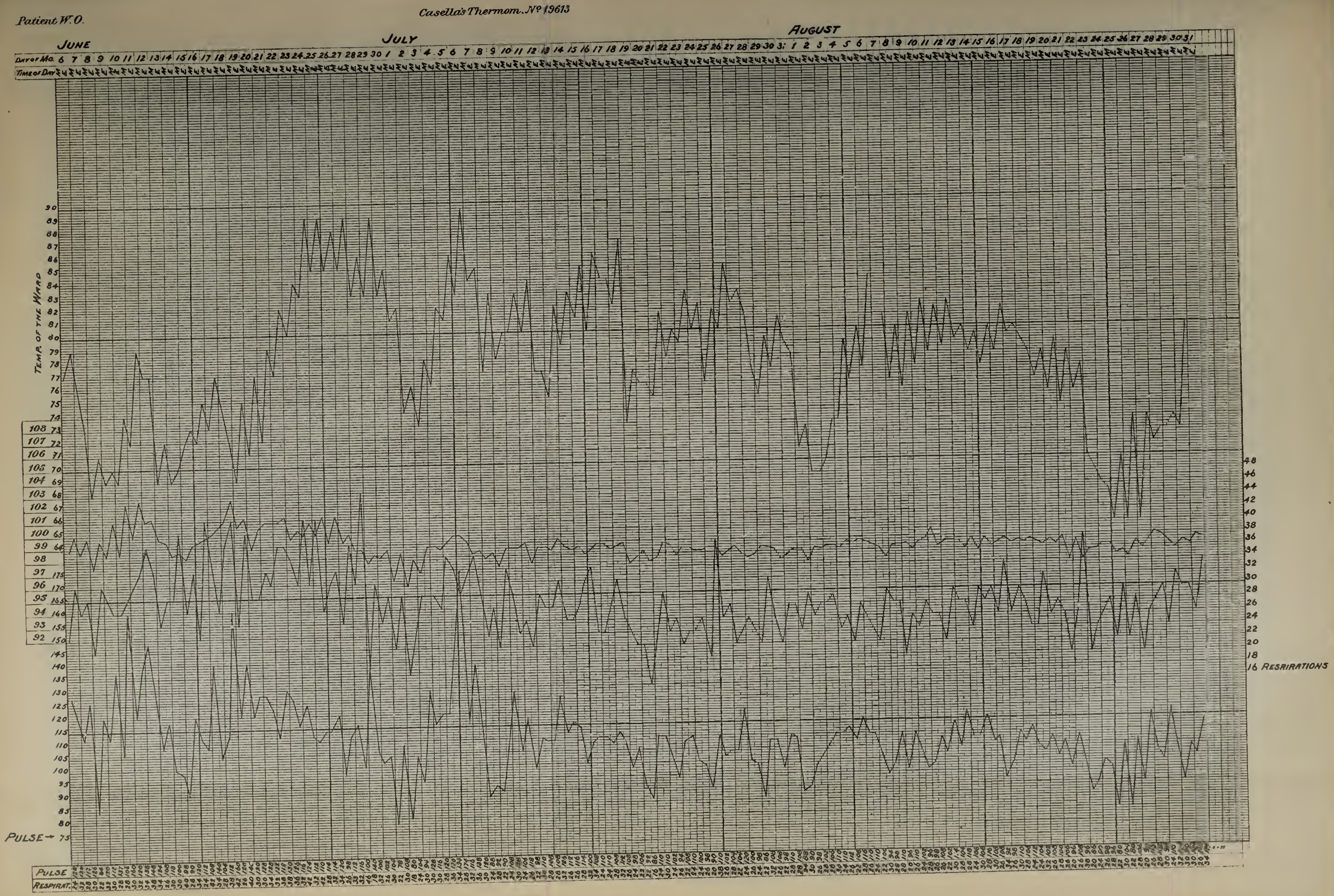


Chart. 2.


Patient W.O.
Casella's Thermom. No 19613
JUNE
JULY
AUGUST
DAY OF MO.
TIME OF DAY
TEMP. OF THE WARD
90
89
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87
86
85
84
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81
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108 73
107 72
106 71
105 70
104 69
103 68
102 67
101 66
100 65
99 64
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97 175
96 170
95 165
94 160
93 155
92 150
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125
120
115
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85
80
PULSE → 75
48
46
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36
34
32
30
28
26
24
22
20
18
16 RESPIRATIONS
PULSE
RESPIRAT.

missed upon but three or four occasions, and then the subject had generally been removed from the city for twenty-four hours, while in one case a child died before the three months had fully elapsed.

Anything that could affect those six children in any way whatever was carefully noted by me, and I very soon became more or less familiar with their several family histories, their temperaments, and even their idiosyncrasies when the same existed. All observations were made upon the spot at the time of taking in a note-book kept for the purpose. The thermometer used to take the temperatures of the ward was a perfectly reliable instrument, and was daily compared with the standard instruments in use at the United States Signal Office and Weather Bureau, and from that institution I received every twenty-four hours their printed official meteorological bulletins. In fact, I constantly studied the entire organism and the various changes it underwent in each one of the children under my observation, and rigorously compared the data thus obtained with the entire environment in which it lived. Little or nothing escaped my notice in this self-imposed task, and it was my aim to make it as complete, accurate, thorough, and useful as possible. All results were compared with those who had published similar labors prior to my own undertakings, especially with the long series of temperatures taken by Dr. Wunderlich.

I had in use three of the best clinical thermometers made, and the same instrument was always used with the same child, and none of them were broken during the course of my observations. No one ever made the readings except myself, and the special directions for the use of each were invariably attended to at the time.

The thermometers in use were the following:

No. 1. A six-inch instrument (No. 19,613) manufactured by L. Casella, of London.

No. 2. A six-inch instrument (No. 6,502) manufactured by J. H. Gemrig. Corrections to be applied to its scale readings, as determined by comparison with the standard instruments at the Kew Observatory, were:

At 90°	— 0°·1 ;
At 95°	+ 0°·1 ;
At 100°	— 0°·0 ;
At 105°	— 0°·1 ;
At 110°	— 0°·1.

No. 3. A six-inch instrument (No. 6,529) also manufactured by J. H. Gemrig; corrections similar, except

At 110°	— 0°·2.

"When the sign of the correction is +, the quantity is to be *added* to the observed scale reading; and when —, to be *subtracted* from it." These instructions were always carried out.

In September, after this long series of observations had been completed, it became evident to me that a systemized account of them, illustrated by the proper charts, would probably be of value as a contribution to the subject. This was done, and the record was compiled by me in the form of a memoir, and the charts, accurately drawn upon double elephant-size sheets and handsomely bound, made an atlas of large size. The work was presented as my thesis at graduation under the title of A Series of Thermometrical Observations upon Children, and it was by a committee of the faculty awarded the first prize. Subsequently it was offered to the editor of the *American Journal of the Medical Sciences* of Philadelphia, indorsed by a letter from Surgeon-General Charles H. Crane, of the army, and accepted for publication. At that time I was on duty in the Army Medical Museum in Washington. At a later date circumstances arose which induced me to withdraw it again, and the atlas came into use in the Surgeon-General's office in connection with the construction of charts arranged somewhat upon the same plan for clinical use by the medical officers of the army. As I was engrossed at the time with my literary labors and the pressing duties in the Museum and Smithsonian Institution, the subject temporarily slipped my mind. Soon after I was ordered to frontier duty, and the entire work was left in the Surgeon-General's office for safe-keeping. During my absence many changes took place in that office incident to its moving out of its old quarters and into the War Department wing of the new State Department. Two years after my return, at my request, a thorough search was made for the memoir and its atlas, but no clew could be obtained to it, and it became evident that it had been mislaid during the confusion attending the changes to which reference has just been made.

Fortunately, I had had made on a previous occasion large photographs of all the charts,* and had not lost the original note-book containing the observations. From these data the present article has been compiled.

THE RECORD.

As already stated, my observations were made upon six children, and of them I shall first present a brief history:

1. H. F.—A boy about five years and a half old, slight in build, of medium height, with light-brown hair, fair complexion, and large, bright blue eyes. A good-tempered, bright, and clever lad, and ordinarily very healthy. Cheerful and of good habits. Parents presented nothing peculiar in their history. (Thermometer No. 19,613 was used in his case.)

2. W. O.—A boy of about four years of age, under the average size, and of slight and delicate build. Fair in complexion, with light-blue eyes and flaxen hair. An orphan, and exhibited evidences of struma. An unusually quiet child, of winning nature and gentle manner. Rather a mercurial temperament on the whole, and subject to fits of depression or sadness, though at other times indulged in quiet, childlike fun. Rarely played like other children. (Thermometer, No. 19,613.)

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* The negatives of these photographs were also stored in the Army Medical Museum, and very recently I repaired there to secure them in order to have, at my own expense, a set of fresh prints made. After an hour and a half's search in the dusty old photographic garret of that institution, aided by the photographer, I failed to recover even those relics, and had to rely upon a much-faded set, taken many years ago, and still preserved by myself. I am much indebted to the publishers of the *New York Medical Journal* for their promptness and great generosity in meeting the expense of having a set of charts made from them. I am also very much indebted to Mr. Delancy W. Gill, the artist in charge of the Art Department of the United States Geological Survey, for selecting an artist for me from his department to execute the work. This latter was done by Dr. Cudlipp, and with marked care and ability, for which my grateful acknowledgments are hereby tendered.

3. N. H.—A girl twelve years and two months old. A history of her parents could not be obtained, and her own medical history presented nothing peculiar. She was a very dark brunette, with dark hazel eyes and very dark, almost black hair. Possessed of a good full figure, well-proportioned, she was about of the normal height for her age or rather above it. Quiet and retiring in her disposition, she was a girl of strong likes and dislikes, which she ill concealed when her emotions called them forth. Very fond of exercise; honest and good-natured toward her playmates. Exhibited evidences of approaching maturity, though the menstrual periods had not made their appearance. Mentally she appeared to be rather below girls of average intelligence. (The Gemrig thermometer No. 6,502 was used in her case.)

4. M. W.—A girl with not particularly good family history. Four years and six months old. Small for her age; stout and plump. Fair complexion, though with dark hazel eyes and light-brown hair. A clever and bright child with cheerful disposition, and somewhat inclined to be precocious. Apparently healthy and of good constitution. (Thermometer used, Gemrig No. 6,529.)

5. A. B.—A very dark-skinned, black-eyed boy, with jet-black hair, about two years of age. Family history not good, and the child evidently strumous. A rounded, well-formed baby, with largish head and thick upper lip. Upon catching cold its lymphatic glands of neck and groins enlarge easily. Sullen disposition, dull and phlegmatic temperament. Not fond of play. Has some indications of a child born of syphilitic parents, which in its case is not improbable. (Thermometer used, Gemrig No. 6,502.)

6. M. S.—A small, slender, delicate girl of two years of age. Born at Washington, D. C., and both parents living. History of tuberculosis. Child very fair, with light golden hair and hazel eyes. A bright and rather interesting baby, in whom the cranial fontanelles had not yet closed in, and the veins are prominent at the temples. This child died before I completed my observations upon her; weighed when well, twenty pounds, but became extremely emaciated and fell to ten pounds at the time of her death. (Thermometer used, Gemrig No. 6,529.)

Thus it will be seen that these six children were very well selected for my purpose, as regards both age and sex, as well as temperaments and general history.

I next present the daily current record in each one of these cases, taking them in the order as given above, and these several records, to be appreciated and understood, must be constantly compared with the chart that illustrates any one of them. The value of the entire records will then become apparent, and many instructive points present themselves which my space here will not admit of my dwelling upon. I invite attention only to the salient features beyond, believing that the practiced physician will experience no trouble in recognizing the unwritten teachings of this long series of valuable observations.

The case of H. F. was commenced on Sunday, May 30, 1875, at which time he exhibited the eruption of an uncomplicated case of measles, having been complaining two days prior to that date. He was ordered to bed, the room darkened, and the usual diet and nursing ordered for him. The eruption well marked on the face, upper part of thorax, but not seen at the elbows. Assumed the crescentic forms on the cheeks. Slight cough. Conjunctivæ somewhat congested. At 5.30 P. M. of the same day a second visit was made, when the eruption was seen to be more marked. Pulse full. Thermometer ten minutes in axilla. Following prescription ordered:

℞ Liq. ammon. acetat.................... ʒ ij;
Syr. scillæ, }
Spt. ætheris nitrosi, } ....āā ʒ ij;
Syr. pruni vir .... ℥ ss.
M. Sig.: Teaspoonful every two hours.

May 31st, 6.40 A. M.—Eruption general. Nasal discharge absent. Eyes congested. At 5.30 P. M. eruption more marked Face entirely covered, and flushes a deep red when patient coughs. Slight discharge from left eye.

June 1st, 7.10 A. M.—Discharge from both eyes, staining the linen during the night. Eruption paler. (Temperature at noon, 100°.) At 5.40 P. M. eruption hardly changed. Patient quiet and comfortable. Eyes give no trouble. Bowels acted twice in the twelve hours.

2d, 6 P. M.—Eruption still well marked, but with first signs of desquamation present. Coughs. Patient otherwise comfortable.

3d, 6.30 A. M.—Eruption much paler. Improvement general. At 6.30 P. M. cough hard and dry. Eruption rapidly fading, and desquamation thoroughly established. Spots hardly visible on face and thorax; stronger on the arms.

4th, 6.45 A. M.—Eruption still present on extremities, almost entirely absent on face. Still coughs. At 6.30 P. M. the eruption entirely off of face and chest. Hard cough. All the graver symptoms absent. Inclined to play, and desires to get up.

5th, 6.45 A. M.—Eruption still slightly marked on thighs and arms, but at 6 P. M. had almost entirely disappeared. Cough improving. Inclination to play in the ward, which has been allowed for a few moments at a time.

6th, 7 A. M.—Still faint evidences of eruption; cough very slight, and no signs of it at 7.15 P. M.

7th, 7 A. M.—Eruption absent entirely. No cough. Child still kept in bed.

6 P. M., Note for all Six Cases.—General falling of the temperatures to-night. Thermometers applied ten minutes in each case. There has been a hard, cold rain all day.

On June 8th, 6.15 P. M., the patient had been eating a quantity of bread and milk just before his observations were recorded. From the 9th to the 12th, inclusive, the morning observations were made at 7 A. M., and the evening ones from 6.15 to 6.45 P. M. Just before taking the morning observation on the 12th I evacuated the pus from a contused gathering on the left heel. The times for taking the observations ranged about the same through June 24th, but the evening observations were not taken on that day until 8.30 P. M., the thermometer having been 95° F. all the afternoon, and the child at a picnic from 3.30 to 8.30 P. M.

General Note for all the Cases.—Thermometer 91° F. at noon; a thunder-storm came up while I was engaged in taking the observations, and the mercury fell to 84° before they were completed at 6.30 P. M.

July 20th, 7 P. M.—Child asleep when observations were taken; and on August 4th the boy had been in bed all day from blisters on his heels. He was confined to his bed from that cause almost continually from the just-named date to include August 20th. On the 7th of the month unhealthy granulations made their appearance (right heel), and adhesive strips were applied. Next day strips were removed; condition improved; washed ulcer with a solution of potass. permang. (ʒj to ℥iv of water), and prescribed syr. ferri iodid. (gtt. x in water three times a day). Observations of August 10th taken several times with same result. No apparent cause for the increased respirations. Foot nearly healed toward the latter part of August, but the child shows the effects of his confinement in

Patient N.H. NEW YORK MEDICAL JOURNAL. Gemrig's Thermom No 6502 Chart 3.

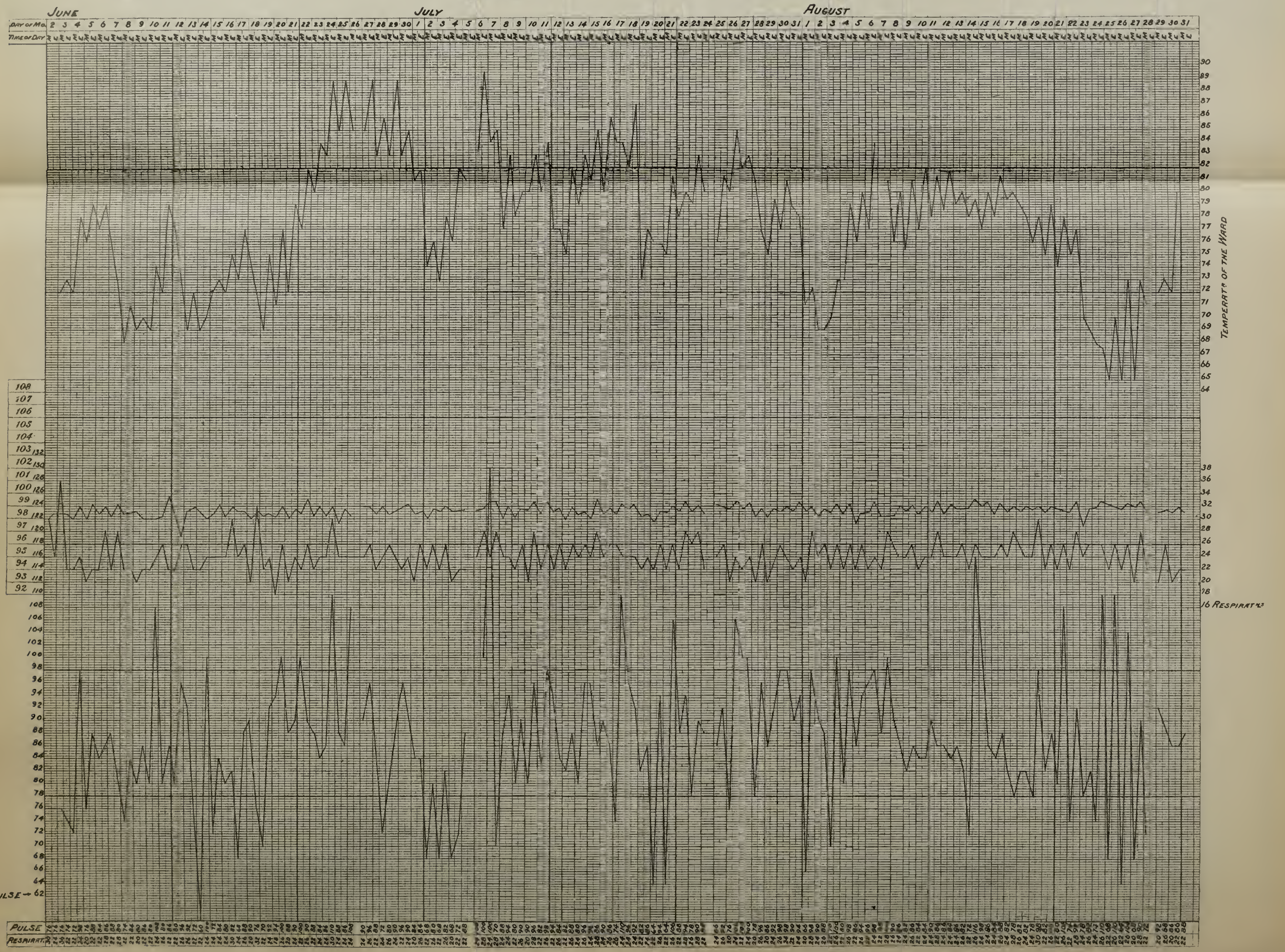
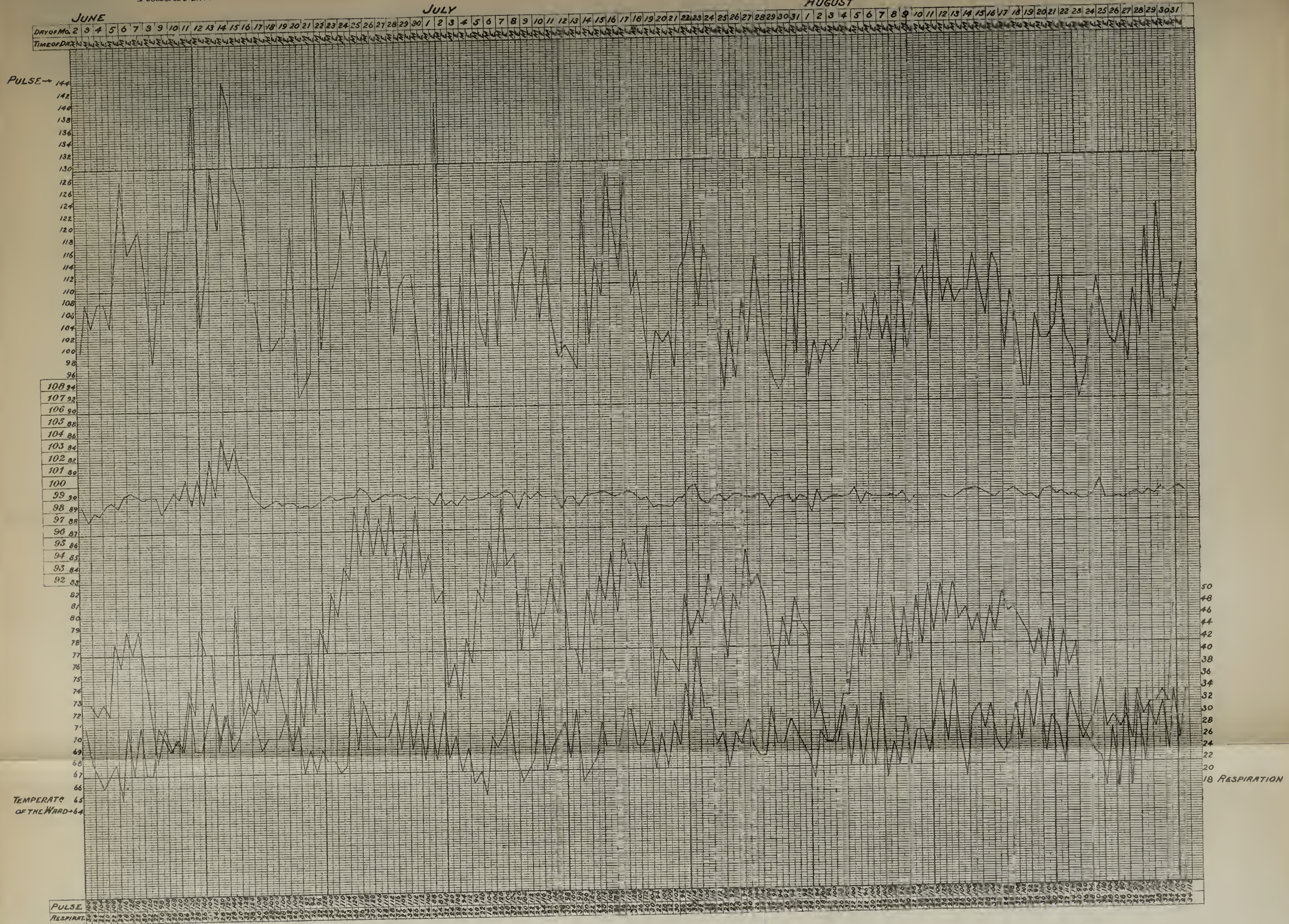


Chart 4.

Patient M.W.

Gemrig's Thermom. No 6529



bed so long. Nothing else especially characterized his case, and when the month closed my observations upon him ceased.

Case II.—W. O. My observations upon this child commenced on the 6th of June, 1875, and on the next day I noticed the child was complaining and restless, but was all right on the day following. On the 9th the child complained a little during the day. Sneezed a good deal. Slight congestion of conjunctivæ. (The measles has appeared in a boy in the next ward.)

June 10th, 7.15 A. M.—Coughs slightly, and slight epistaxis. At the evening observations the patient was removed to the "measles ward." Eruption beginning to appear on the face. Cough. Case uncomplicated and typical. Herpes labialis present.

11th, 6.45 A. M.—Eruption slightly marked on the face in small *crescentic* patches. Coryza and expectoration of sputa. Extremities cooler than trunk. Photophobia; cough. Characteristic odor present. Digestive apparatus normal. *No medicine ordered.* (Other cases of rubeola appearing in the wards.) At 6.15 P. M., eruption spreading to the neck; none on thorax or extremities. This disease now epidemic in the wards of the hospital; six other cases down to-day.

12th, 6.50 A. M.—Eruption well marked on the face; isolated papules on extremities; none on the chest. Cough. (A patient in the next bed had a profuse epistaxis last night with no sign of the eruption this morning.) At 6 P. M., patient comfortable; no additional symptoms. Eruption appearing in isolated papules on thorax and abdomen; strongly marked on lower extremities. Took no nourishment to-day beyond a very little milk.

13th, 7.30 A. M.—Desquamation commenced on face. Child doing well. Cough diminished. Remained about the same during the day, and at 6.15 P. M. eruption desquamative. Bowels sluggish; eats little or nothing. I note an unusual coldness of lower extremities. *No medicine given whatever.*

14th, 6.45 A. M.—General improvement; 6 P. M., improved during the day; eruption paling and desquamative. Dry cough.

15th, 7 A. M.—Still improving; eruption disappearing normally; at 7.40 P. M., took observations while child was asleep.

16th, 8 A. M.—Improvement in every way still goes on, and at the morning observations of the 17th the child asks to be allowed to get up, which is allowed, but it is followed by a rise in the patient's temperature next day. From the 19th to the 24th of June the child is apparently well (day of the picnic; compare the other cases). No medicine given.

29th, 7.15 A. M.—Crying during observations.

July 1st, 7.30 A. M.—The boy had been lying for some time asleep on the cold brick hearth in the ward. Pulse full, very strong and intermittent. At 6 P. M. he was attacked with diarrhœa.

2d, 7.45 A. M.—Just taken a cold bath; pulse strong and irregular. Instrument in axilla twelve minutes. At 6.15 P. M., diarrhœa suddenly checked.

8th.—No reason could be discovered for change in pulse. The patient was asleep on July 20th when his observations were taken.

The special interest in this case is that during the child's attack of measles he took no medicine of any kind whatever, and so the curve on the chart is a curve for that disease unmodified by medical treatment.

Case III.—N. H. Observations upon this girl were commenced on June 2, 1875, and, upon closely questioning her, could assign no cause for the change in her pulse on the evening of the 3d, though on the evening of the 10th it was undoubtedly due to the fact that she was sent over to my room, where the observations were taken. This was also the case on the evening of the 12th, the girl being absent on both occasions from the hospital at the times of my regular visit there.

July 7th, 7.45 A. M.—Been violently exercising in a swing, as was also the case on the evening of the 17th, 20th, and 26th of the same month, and the 1st and 7th of August. On the evenings of the 9th and 10th she had just taken a cold bath, and had been vigorously exercising just before the observations were taken on the evenings of the 14th and 21st of August. This case well exhibits an even course of temperatures in a healthy child, which were rarely affected by the temperatures of the surrounding atmosphere. Her respirations were also unusually regular, while, on the other hand, her pulse was subject to wide fluctuations from various causes. This is quite in keeping with the emotional nature she possessed.

Case IV.—M. W. The first week the child was apparently in a healthy and normal condition. On the 9th of June, 6.30 P. M., the observations were taken as she lay in bed, next to the bed occupied by W. O. (Compare charts and data.)

June 10th, 6 P. M.—Child not complaining and presenting no symptoms beyond the rise in temperature. Next day the child has a slight cough, but no coryza. This is followed on the next day (12th) by a slight congestion of the conjunctivæ. Placed in bed. No additional symptoms on the 13th in the morning, though in the evening (6.30 P. M.) a high temperature is seen. Tongue clean and moist. No eruption beyond a slight blush in the folds of the neck. (Patient of a stout form.) Eyes clear. Taken only a glass of milk to-day as nutriment. No movement of the bowels. Slight cough and coryza.

14th, 7 A. M.—An eruption of red points on *neck* and *shoulders* appearing gradually. Tongue slightly coated, with red papillæ showing above. At 6.30 P. M. rubeola makes itself evident, with all the symptoms of the first day of the eruption (as generally described in the books). Upper half of the body all broken out, but the eruption seen below *only on the knees.* Coughs. Marked photophobia. Anorexia.

15th, 7.30 A. M.—Slight desquamation on face. Eruption appeared on lower extremities, running together on the inside of the thighs and knees; otherwise isolated in that region. Cough dry and incessant. The eruption was general on the 16th of June, but desquamating on face and neck. Symptoms improving.

17th, 7.15 A. M.—Eruption almost gone on forehead. Still improving. Dry cough still present at evening observation.

18th, 7.15 A. M.—Very little change in eruption; persistent on cheeks; at 7 P. M. still well marked on trunk and extremities. Coughs.

19th, 6 P. M.—Patient up and about. Remains of eruption still present, and it did not completely disappear until about the 23d of June (24th—the day of the summer picnic). From this date on till the end of August the case shows the course of temperatures, pulse, respirations, etc., following an attack of rubeola.

Case V.—A. B. On the 4th of June this child had a crying spell, which lasted for full fifteen minutes, just prior to taking observations, and at 7.25 in the evening, on the other hand, it appeared unusually quiet, was very slightly flushed, but no cause could be discovered to account for rise of temperature and quickened pulse.

June 11th, 7.45 A. M.—Just taken a bath; extremely cold.

12th, 6.20 P. M.—No symptoms beyond rise in temperature; symptoms of the epidemic, however, appeared on the 14th, though no eruption had yet appeared.

15th, 7.15 A. M.—Secretion from nose drying on face. Upper lip swollen. Few papules on face. At 7.15 P. M. still no eruption. Child asleep; restless. Next morning, at 7.30, a slight eruption appeared on the face; evidently rubeola; coryza; and at 6.30 P. M. there were a few papules on neck and shoulders. Photophobia; coryza; sneezes. Skin dry and squamous on the face. Restless.

17th, 7.30 A. M.—Eruption general; isolated on trunk and extremities and neck; strongly confluent on face. Papules brilliant red; increased during the day; in the form of confluent cresentic patches on face. Other symptoms mild.

18th, 6.15 P. M.—Child irritable all day. Eruption paling on face. Next morning patient was asleep when observations were taken. Eruption still disappearing.

19th, 6.30 P. M.—Respirations very irregular. Sordes on tongue. Skin of face cracking. Lips sore. Coryza in slight degree. (Specific taint.)

20th, 8.15 A. M.—Eruption still generally marked. Coryza. Respirations very irregular. Dyspnœa. At 6.20 P. M. marked general improvement since morning observation. Eruption paling. There seems to be no apparent cause for the remarkable variations in the respiratory action at irregular times in the case of this child. He had a habit of suddenly taking in a quick breath, holding it for a greater or less period, when he would give way to a forcible expiration. I have never seen another *baby* that behaved in such a peculiar manner in this particular. On the 23d there seemed to be some slight dullness on percussion over the base of the right lung, with coarse râles. Persistent diarrhœa.

24th.—The diarrhœa ceased during the night without medicine.

25th, 6.45.—Observations taken while the patient was sitting up.

26th, 7.30 A. M.—Diarrhœa commenced again; movement every hour. Chalk mixture prescribed. Cough. The following also given:

℞ Potass. chlor	gr. xxiv;
Ammon. sesquicarb	gr. xvj;
Mucil. acaciæ	℥ jss.;
Syr. senegæ	ʒ ij;
Syr. ipecac., Sp. æth. nit.,	āā ʒ j.

M. Sig.: Teaspoonful three times a day.

Diarrhœa continued off and on for several days, but on the 29th of June, at 7 P. M., the patient appeared pretty well.

30th.—Stopped taking the above-mentioned prescription. Very little dullness on percussion over lung. Some diarrhœa.

July 2, 6.30 P. M.—Eats very little. No apparent cause for rise in temperature. Lung trouble entirely absent on the 14th. Irregular respiratory action continues as usual. On the evenings of the 18th and 20th of July child slept during the observations.

August 9th, 7.15 A. M.—Just got out of bath.

31st, 6.15 P. M.—Had eaten an amount of fruit prior to observations.

In this case there are a number of instances (August 4th, 6.45 P. M.; August 8th, 6 P. M.; and August 23d, 6.45 P. M.) in which a rise of temperature is observed and where no cause could be assigned. The instrument on such occasions was often left in the axilla for fifteen minutes, and the record carefully made.

CASE VI.—M. S. At the time of taking the observations on the 3d and 4th of June the child was asleep, and on the 11th I noticed she had a cough, was restless, and her eyes were slightly congested. Without other symptoms there was a rise of temperature on the evening of the 12th of June (6.30 P. M.).

June 13th, 6.30 A. M.—Child quiet. Eyes clear, but heavy and dull. Tongue moist. Lips dark-colored, dry, and cracked. Feet cold. A peculiar flush at the elbows and knees, which momentarily disappears on pressure. No other appearance of an exanthem. On the 14th, 7.20 A. M., this disappears, bue there is sneezing and a coryza tinged with blood. Otherwist comfortable. At the evening visit (6.30 P. M.) the eruption of measles on the forehead and face. Coughs and sneezes. Lips black.

15th, 7.15 A. M.—Eruption appearing irregularly. Lips cracked and dry. At 7.15 P. M. of this day found patient low. From 11 A. M. been taking spr. fermenti dil., half a teaspoonful every two hours. Also the following:

℞ Ammon. sesquicarb	gr. xvj;
Mucil. acaciæ	℥ j;
Sp. æther. nitros	ʒ ij;
Sp. limonis	ʒ vj.

M. Sig.: Half a teaspoonful every two hours.

16th, 7.15 A. M.—No change. Medicine continued. Eruption general, scanty, and pale. Photophobia. Some improvement seen at 6.30 P. M. Lips suddenly skinned off. Temperature at noon, 100°. Medicine continued.

17th, 7.30 A. M.—Lips again black and cracked. Sordes on tongue. Eruption pale. Patient very weak. Emaciated. Sleeps well. Bowels regular. Showed some improvement at 6.15 P. M. From this date to the 26th of June there was general, though irregular, improvement. It was some time before the lips and the tongue healed. The eruption was entirely absent on the 21st. During this time, however, it was evident that this little patient was slowly becoming much emaciated, and the summer heat had much to do with this. Commenced taking syr. phosphat. comp. By July 5th cholera infantum had thoroughly developed, and a very intractable type of it. The following medicines were ordered:

℞ Tinct. opii comp., Tinct. cardamomi co.,	āā ʒ j;
Syr. rhei aromat	ʒ ij;
Aq. calcis	℥ jss.

M. Sig.: Teaspoonful every two hours.

Also—

℞ Hyd. cum cret	gr. ij;
Pulv. cretæ	gr. viij;
Pulv. aromatic	gr. iij.

Div. in chart no. viii.

Sig.: One every four hours.

Sinapisms were applied to lower extremities (July 6th, 7.15 A. M.). Little or no change. Slept well. Vomiting and diarrhœa checked. Emaciation continues to progress. Brandy and ice given. At 6.15 P. M. some general improvement.

July 7th, 7.15 A. M.—Patient slept poorly during the night. Diarrhœa commenced again. At 6.45 P. M. slight improvement. Vomiting checked.

8th, 7.30 A. M.—Slept well during the night. No medicine taken. General appearance improved. Anorexia. On July 11th the patient seemed to have fairly recovered. Ordered Hubbell's bitter wine of iron. The disease again recurred on the 12th of July. Breath very offensive. Cries and struggles when observations are taken. This condition continued more or less through the morning observation of July 21st, inclusive Her struggles undoubtedly modified all her observations, though pulses were counted over and over again until no difference in the beats was recorded; the same care was taken with temperatures and respirations.

22d, 6.15 P. M.—The patient emaciated to the last degree. Nearly the entire skeleton can be made out as she lies in her crib. Vomits her food.

Chart 5.

Patient A.B.

Gemrig's Thermom. No 6502

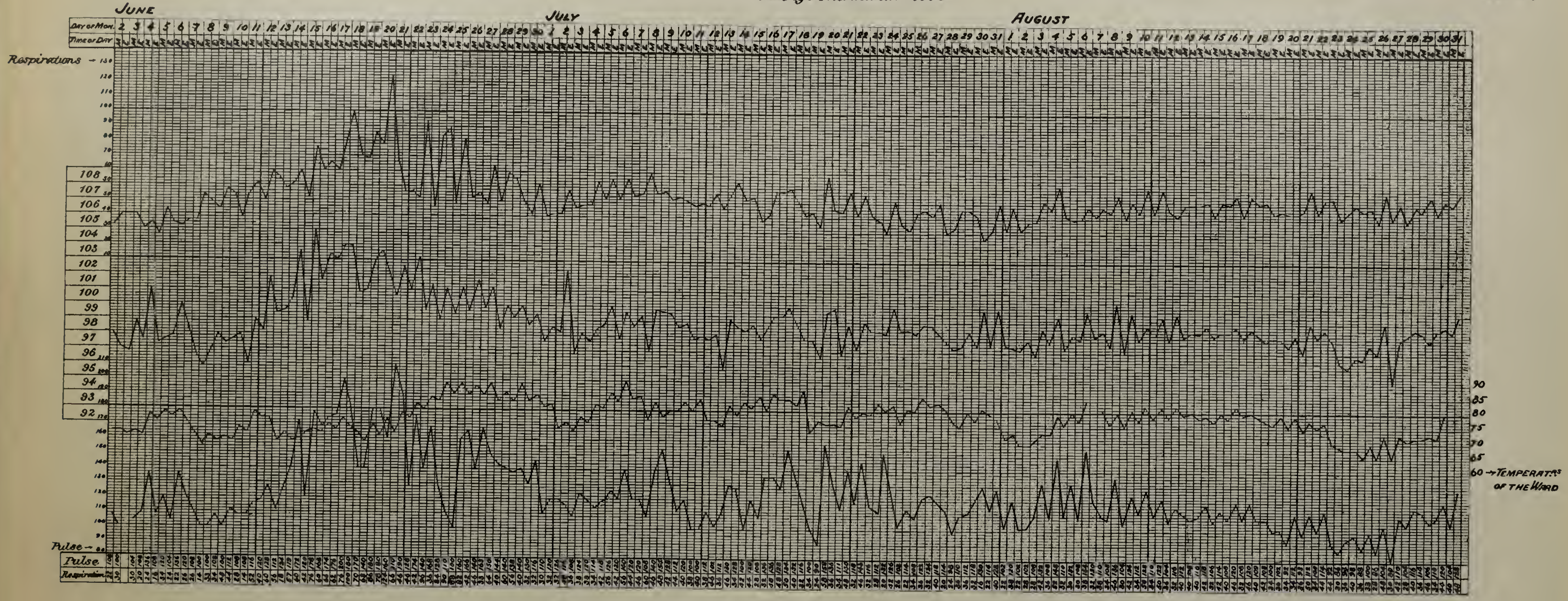
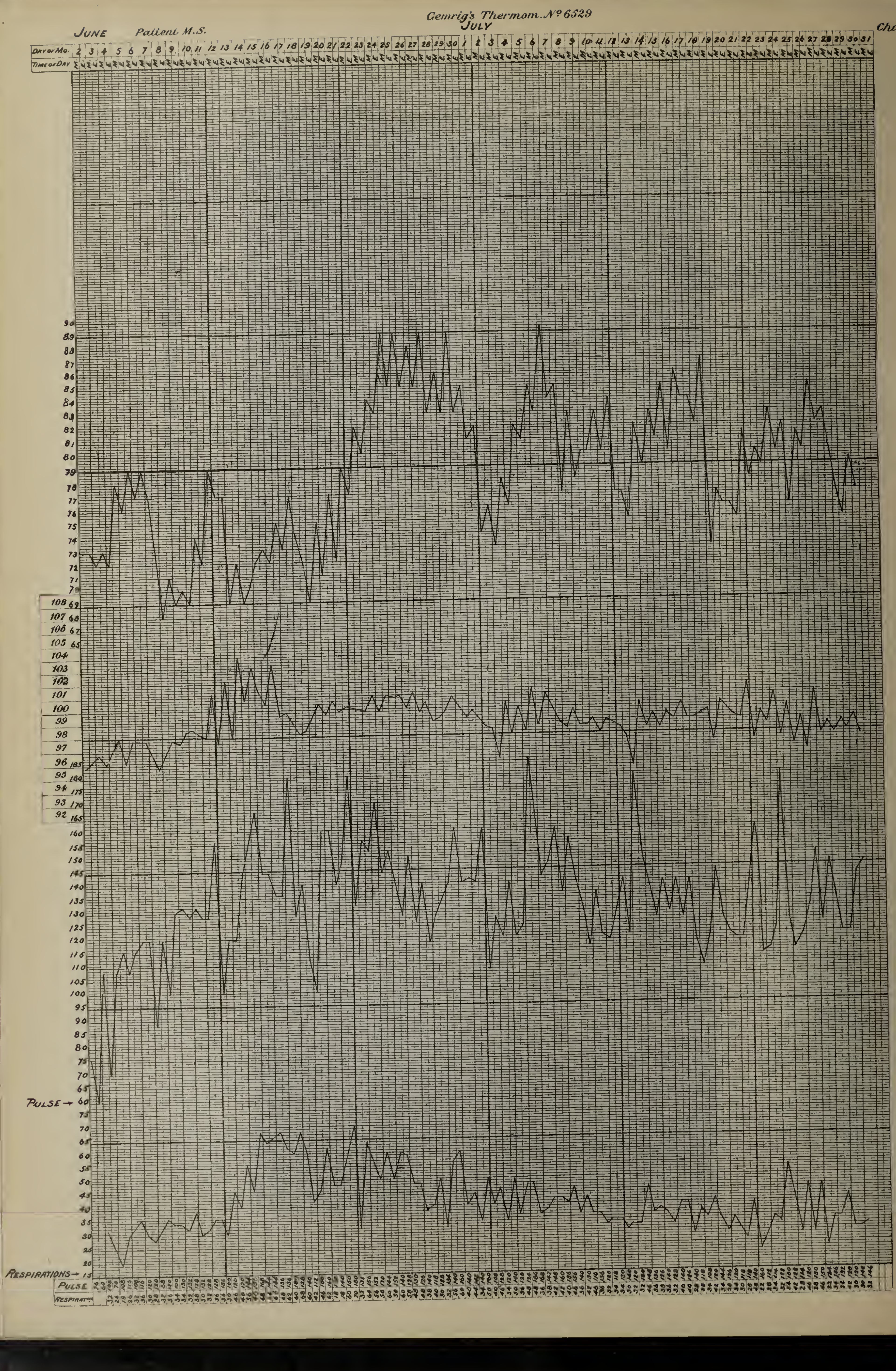


Chart. 6.


Gemrig's Thermom. No 6529
JUNE
Patient M.S.
JULY
DAY OF MO.
TIME OF DAY
PULSE →
RESPIRATIONS →
PULSE
RESPIRAT'NS

23th, 7 P. M.—Ordered—

℞ Tinc. ferri chlorid .... gtt. xxx;
Potas. chloratis.................... ʒ ss.;
Syr. limonis........................ ℥ ss.;
Aq. camph.......................... ℥ jss.
M. Sig.: Teaspoonful every two hours.

Left nostril swollen, the swelling extending to the left canthus of eye. Slight discharge. Still losing flesh. Face pinched and very thin. Disease gradually gains ground to include the 30th of July, when, taking advantage of a slight improvement, the patient was removed to the country.

I afterward learned that the child succumbed to the disease on the 22d of August, 1875. She never returned to the hospital, and so no further observations were obtained in her case.

Brief Summary of Results.

The writer is encouraged to believe that the observations set forth and the results attained in the present paper will prove to be instructive, inasmuch as they go to show—

1. The variations in the temperature of a child, both during an attack of rubeola and for a long time afterward, as compared with its pulse and respirations.
2. The effect of the temperatures of the ward in cases of rubeola.
3. A normal curve of rubeola, unaffected by treatment, and the course of the temperatures, pulses, respirations, and so forth for a long time afterward.
4. A long curve of normal temperatures, compared with the pulse and respirations, and showing the effects of exercise and atmospheric temperatures on those physical conditions.
5. A curve showing rubeola followed by cholera infantum, with comparisons of pulse, respirations, and atmospheric temperatures.
6. The various effects produced on the temperatures, pulse, and respirations in different children by the variations of the temperature of the surrounding atmosphere in health and disease.

COMPLETE INVERSION OF THE UTERUS
REDUCED BY SYSTEMATIC TAMPONMENT OF THE VAGINA.

By A. Y. REID, M. D.

Mrs. K., primipara, a strong, healthy woman, aged twenty-six, gave birth to a male child at full term, May 9, 1891, at 1 P. M., after what appeared to be a very normal labor of about ten hours' duration. Slight traction on the cord and moderate pressure over the hypogastrium brought the placenta away in good shape. Considerable loss of blood followed. This was soon stopped by kneading the womb, and a firm contraction of that organ resulted.

After bandaging the patient, something I never fail to do, regardless of the growing tendency on the part of the profession to neglect this old custom, I gave her a drink of brandy and water, and turned my attention to the child. While I was thus engaged, Mrs. K. complained of severe after-pains and loss of blood. The bleeding was not profuse. However, I deemed it best to make a uterine injection of hot carbolized water, and at once check the flow of blood and disinfect. As a hæmostatic, hot water, as recommended by Emmet, has always proved successful in my hands, except in one instance of post-partum hæmorrhage, where it and all other means failed.

The abdominal walls being thick and fleshy prevented a satisfactory manipulation of the uterus from above; so, to make matters sure, I passed my hand into the vagina, and, finding the os dilated, advanced it into the uterine cavity. At the fundus, a little to the right, I discovered a rounded, slightly pedunculated tumor, entirely covered with clotted blood through which my fingers easily pressed. At first I thought this a fibroid, but after sweeping my hand around the walls of the uterus and discovering them of more uniform and smoother surface, I concluded that it could only be a partial inversion at the site of the placental attachment.

During contractions of the uterus this tumor remained flaccid, having a tendency to ascend, and it was during a period of uterine contraction that I was enabled to reduce it. With the inversion restored, the bleeding stopped, and the parts thoroughly cleansed, the patient was left in good condition.

May 10th.—Mrs. K. passed a fairly good night, and expressed herself as feeling comfortable, although her temperature was 103°, with a pulse of 140. Suspecting a return of the inversion of the uterus, I made a close inspection of that organ, but found it normal in every respect. The lochia were natural, and no tympanites or tenderness of abdomen existed. I drew off three pints of healthy urine. Unable to discover any adequate cause for such a temperature and pulse, I finally ordered ten grains of quinine, to be followed by smaller doses if necessary, sustained by nutritive and stimulating drinks, such as beef-blood, gruel, kumyss, milk-punches, etc.

11th.—Mrs. K. passed an uncomfortable night. She had a number of severe after-pains during the night, with considerable loss of blood and serum. She was now in a state of collapse, with a temperature of 102° and a pulse of 150, very anæmic, and bathed in a cold, profuse perspiration. Still suspecting inversion, I at once made a digital examination, and found the inverted uterus so occluding the vagina as to make it impossible to even introduce one finger. I felt convinced that the inversion had taken place during the night, allowing the lapse of sufficient time to render any individual effort at reposition by taxis not only useless, but actually harmful.

I at once sent for Dr. James K. Crook, who promptly responded, and, after hearing my explanation of the case, made an examination, confirming my diagnosis.

We decided to reduce by taxis, and, contrary to the rule, found the uterus so little sensitive to the touch that we were able to keep up pressure in the axis of the pelvis for an hour, without much pain to the patient. Nevertheless, what was done aggravated her already collapsed condition, without any perceptible improvement below, making it hazardous to the patient to continue the operation.

Prior to the attempt at reduction, all preparatory steps were taken, such as catheterism, emptying the bowels, etc.

Dr. Crook and I decided to postpone further efforts at reduction till the patient could safely bear them. She was seen by me four times during the day and night, my whole attention being devoted to restoring her strength; tonics, nourishing and stimulating drinks were being crowded. Vaginal injections of carbolized water were ordered every three hours.

12th.—The breasts now began to disturb the patient. Temperature, 102°; pulse, 130. Even so, she appeared cheerful and seemed to have become accustomed to her condition.

Dr. Crook by appointment soon arrived, and, after taking bearings, decided that another attempt at reposition could be borne by the patient. Placing her in the knee-chest position, the doctor and I took turns in compressing the uterus and at the same time forcing it up in the axis of the pelvis. The patient bore the operation badly, and, as no satisfactory progress was being made, we desisted, Dr. Crook suggesting that a specialist be called in.

It seemed to me that some progress was made, since we were enabled to more easily introduce the hand within the vagina toward the last of the operation, though this fact may have been due to the very great distention of the vagina itself. At no time could the cervical region be reached over the large tumor. The patient was continued on supporting treatment, and, though very weak, retained her courage and fortitude.

The child, already placed upon artificial food, was occasionally put to the breast to relieve the mother of distress from that source. This was done, too, to accustom the child to the breast in deference to the mother's strong and natural desire to nurse her child.

13th.—During the night I was sent for in a hurry, being informed that the patient, after straining at stool, had passed something down from the vagina. On my arrival, the patient was in bed with the womb resting on cloths entirely without the vagina. It was of about the size of an egg-plant, of a bluish-gray color, with a perfectly smooth surface, dry, and glistening.

Dipping my hand in a strong bichloride solution and coating it well with vaseline, I readily returned the uterus into the vagina. There were no lochia or secretions at this time. The vagina was thoroughly irrigated and the patient was left resting easy.

This accident caused more anxiety than pain to the patient, and was followed by no untoward symptom, either before, during, or after the reduction into the vagina. The patient was on the gain now each day, and, as I knew the reposition of the uterus would necessarily be both severe and protracted, I thought delay important to secure sufficient strength and at the same time accomplish something by reduction in the size of the uterus by the natural processes of involution. Hence, also, delay in a second consultation.

From now on till the 21st, when Dr. Horace T. Hanks was called in, a gradual improvement was made, the patient regaining some strength, and the uterus being slightly reduced in size, yet of sufficient bulk to wholly occupy the vaginal space. Each day she was seen twice and the parts were thoroughly washed out.

21st.—Dr. Hanks now called, who, after hearing the history of the case and making an examination, diagnosticated complete inversion of the womb. After consultation we decided to make reduction by systematically packing the vagina each day with carefully prepared sheep's wool, well carbolized and dipped in vaseline. Sheep's wool was selected on account of its elasticity. Four or five pledgets of wool were used—all that could be introduced at this time on account of the large size of the uterus, the patient keeping the knee-chest posture during the operation.

22d.—Mrs. K. passed the last twenty-four hours comfortably. Temperature, 101°; pulse, 125. Dr. Hanks removed the tampon, which was free from septic odor, and, after washing out the vagina, introduced almost twice the number of pledgets previously used.

23d.—Mrs. K. comparatively comfortable. Temperature, 101°; pulse, 124. I removed the tampon, which had no septic odor, and had just finished washing out the parts when Dr. Hanks arrived. At once we set to packing the vagina as before, but, finding so much room had been gained, we decided to use, in connection with the wool, two Barnes's dilators, which we thoroughly surrounded with wool.

24th.—Mrs. K. suffered so much pain during the night that I was sent for. Finding it was due to great pressure in the vagina, I allowed the dilators to collapse, but kept them in position. The patient, having spent a bad night and having a temperature 102·5°, pulse 135, is greatly depressed and dreads an operation. A thorough examination was attempted by Dr. Hanks after the removal of the tampon, but, on account of extreme tenderness of the parts, nothing satisfactory was ascertained beyond the fact of a gradual diminution in the size of the uterus. The parts were washed out and packed as before, but without the dilators. The question of the ability of the patient to hold out now became a serious one, and various operative methods were considered. Finally we concluded to continue the present method another day.

25th.—Mrs. K. appeared brighter and more cheerful, having passed a good night. Temperature, 101·5°; pulse, 125. The plug was removed and the parts were washed. The patient was partially etherized while Dr. Hanks made a rigid examination. The cervix could not be reached, but we felt sure that it must be very well dilated with the uterus partially restored, though so much did remain below. So sure had we become of final success by the present tamponing system that we decided to adhere to it still further, but in the event of failure to resort to Dr. Thomas's method of reposition by laparotomy. Again we carefully packed the vagina, and it was noticed that the severest packing with wool was not at any time so painful as the presence of even moderately dilated rubber bags. Still both were used at this time.

Dr. Hanks, on reaching home, discovered a suspicious odor on his hands, and telegraphed me to remove the tampon late that night, and, after thorough irrigation, to repack, which was done.

26th.—Dr. Hanks removed the tampon, and, after making an examination, requested me to do the same. My finger was swept around the ring of the cervix, which was not even nicked and was contracting well. The uterus now occupied its proper place in the pelvic cavity.

Comments.—The literature on this subject is certainly very interesting and much more extensive than one would suppose, considering the infrequency of the accident, happening, as it does, once in about fifteen thousand confinements. The ætiology of this accident is as various and unsettled as its interminable methods of treatment are confusing. It is enough to say that in this case it was due to paralysis of that portion of the uterine wall forming the site of the placental attachment. This fact, to my mind, was clearly demonstrated when, with my hand in the uterine cavity and grasping the tumor, that portion remained perfectly flaccid, while the rest of the uterus contracted firmly. No doubt, after being restored, this tumor returned, and by the periodic contractions of the uterus was finally coaxed down until complete inversion was accomplished.

Partial inversion with spontaneous cure is not very rare, and I venture to say, confirmed by my own observation, that it occurs oftener in the easier and uncomplicated cases than where violence is used.

Since amputation, the only method practiced about fifty years ago, became obsolete, various new methods have been introduced, all possessing the one general aim—viz., that of returning the uterus by compression and pressure upward, always in the axis of the pelvis. The various methods only differ in the means of accomplishing this end. The too numerous claimants to special methods very much remind me of infringers upon a desirable patent, where a difference is proposed more to escape the infringement laws than to benefit the machine. Aveling's method more than any other commends itself to my judgment, but no doubt in many cases even his method would only be an adjunct to somebody else's method. For instance, Aveling's sigmoid repositor was very nearly approached when Dr. Hanks, before tamponment, employed a stem pessary on a curved placental forceps, and I dare say he had no thought of Aveling's method at the time. The very fact that the methods are so numerous indicates that there is no well-recognized method of treatment of inversion of the uterus. In my mind, it is simply a matter of good judgment and expediency.

Dr. Hanks is too modest to claim any new method, but in his behalf I claim originality in the adaptation of sheep's wool, buttressed more or less with Barnes's dilators, for this purpose, and confidently feel, as in this case, every other uncomplicated case of inversion of the uterus can be cured when treated similarly. Dr. Hanks's method not only is efficacious, but possesses the great virtue of simplicity.

So imbued am I with the excellence of this method, alone and unaided, that I know I shall succeed in repositing in my next case of inversion of the uterus.

104 Lexington Avenue.

A CASE OF OPIUM POISONING.

By GEORGE W. WAGONER, M. D.,

JOHNSTOWN, PA.

At 7 p. m., July 10, 1891, I was hastily summoned to see the female child of G. E. The child, a babe four weeks and five days old, had suddenly passed into a stupid, collapsed condition which greatly alarmed the parents. A careful examination convinced me that the babe's condition was due to the administration of a narcotic. The pupils were minutely contracted, the muscular system was relaxed, the breathing was slow, irregular, and very shallow, the pulse was very rapid and weak, reflex action was almost completely suspended, and the skin was cold, clammy, and slowly becoming livid over the extremities. This array of symptoms plainly indicated some form of opium as the poisonous agent. Upon questioning the parents, I found they had made up during the day a cordial for the relief of colic after the following recipe:

Take one pint of rain-water, one teacup of New Orleans molasses, one ounce of laudanum, one ounce of alcohol, two scruples of salts of tartar, fifteen drops of essence of sassafras. Boil the water, molasses, and salts of tartar, skim, mix all together. Dose, one half to one teaspoonful.

At two o'clock in the afternoon half a teaspoonful of the mixture was given to the babe; at five o'clock the dose was repeated. Within an hour after the last dose the babe had sunk into a deep sleep, and by seven o'clock the parents were thoroughly alarmed at its condition. Efforts were at once commenced to arouse the child from the profound stupor, but it seemed like undertaking a hopeless task. Drop doses of tincture of belladonna were administered every half hour until four doses had been poured down the babe's throat, after which it could no longer swallow. Strong coffee was immediately prepared and administered by enema, one ounce at a time. This was repeated every half hour for three hours, by which time the sphincter had become so relaxed that the enema could only be kept in the rectum by pressure against the anus. As I was unable to remain constantly with the child, on account of a very critical case in an adjoining house, I sent a messenger for Dr. A. N. Wakefield, who kindly responded at 8 p. m. He agreed as to the diagnosis and treatment, and remained with the child until midnight, when I was able to relieve him. In addition to the means of stimulation being used, Dr. Wakefield applied cold water to the head by pouring from a pitcher. This aroused the babe slightly, but he found it necessary to resort to artificial respiration at times. By one o'clock of the morning of the 11th the babe's condition was critical in the extreme. The coma was profound, the pulse was imperceptible at the wrists. Shaking, spanking, cold water poured upon the head or sprayed on the body by a strong atomizer, could no longer stimulate it to breathe regularly; the sphincters were relaxed, the ears and extremities were blue and cold, and respiration was carried on by weak, shallow, and irregular gasps. The neighbors who had gathered in the house, anxious to render aid, left, believing that the babe must die in a very short time. Most of them thought the efforts being made to keep it alive were simply prolonging the death agony in an unnecessary degree. I felt convinced that the antidotes were of very little use in the condition of extreme collapse, when all the functions of life were practically suspended, and that if life was to be saved the babe must be kept breathing until the drug had spent its force. A lady neighbor, whose common sense and nerve never deserted her, held the babe on her lap while I continued artificial respiration without interruption. About once every half minute there would be a shallow spasmodic effort at breathing. Sick at heart, the parents left the room while my faithful assistant and I persisted in the long, weary battle for the child's life. After working two hours we noticed a slight twitching at the lips, the breathing gradually increased in frequency and fullness, the skin began to get red, and at 3.30 a. m. the child opened its eyes and breathed naturally. The coffee injections and the tincture of belladonna were given again and the parents called in to see the amazing change which had taken place. But the change was only temporary; within twenty minutes all signs of recovery had vanished and the coma was as deep as ever. We did not relax our efforts, however. From 3.30 a. m. until 8 a. m. the child was kept alive by artificial respiration. During this interval it revived four times sufficiently to breathe for a few minutes, but soon relapsed into the stupor. At 6 a. m. death seemed to be inevitable; the chest muscles would become fixed and the entire body get livid, but the patient, unceasing pumping of the arms supplied sufficient air to maintain life. By eight o'clock the breathing had improved to such an extent that the artificial method could be stopped for a few minutes at a time; but even then it was necessary to renew the effort very frequently. Dr. Wakefield relieved me during the forenoon and kept up the treatment for two hours, at which time the babe was out of danger. At 3 p. m. it took the breast, passed water, and had a movement of the bowels. It continued to sleep until the morning of the 12th, when it awoke very little the worse for the terrible ordeal through which it had passed.

Artificial respiration saved this child's life. From 8 p. m. of the 10th until midnight it was resorted to at short intervals. From the latter time until 8 a. m. of the 11th, being eight hours, it was kept up with only an occasional intermission of a few minutes at a time. After 8 a. m. it was resorted to as demanded until 12 m. of the 11th. Thus during sixteen hours life was maintained by Sylvester's method of artificial respiration.

The internal remedies used and the different methods of stimulation practiced were no doubt of temporary value; but when coma became so profound and prostration so excessive that death was momentarily expected, they were of no avail. The belladonna caused the pupils to dilate somewhat soon after it was first given, but, there being no improvement in the symptoms, we did not deem it wise to risk substituting atropine narcosis for that of opium.

The recipe above given is simply that of Godfrey's cordial. It has been largely circulated among the mothers of our city by a venerable and highly esteemed minister. Many of the mothers who make use of it would positively refuse to administer Godfrey's cordial to their children, but, because the formula is circulated on the authority of a minister, and also because they mix it themselves, they believe it to be harmless and feed it to their babes without fear. Several of our druggists have informed me that they frequently put up the ingredients for the mixture five times a day. The indiscriminate use of such a potent compound is necessarily harmful, and I have no doubt that an inquiry into its use would bring to light many instances of injurious results, and some cases of death.

The total quantity of the finished product made from the recipe is quite indefinite. Measurements in a household are never accurate and the reduction due to boiling can not be estimated. However, I believe the finished mixture will not usually exceed twenty ounces. This quantity would approximate one hundred and sixty teaspoonful doses, each containing three minims of the laudanum. As the babe had taken a teaspoonful of the mixture, I estimate that it received about three minims of tincture of opium.

REPORT OF A CASE OF STAB WOUND INTO THE LUNG.*

By J. E. SADLIER, M. D.,
POUGHKEEPSIE, N. Y.,
VISITING PHYSICIAN TO VASSAR BROTHERS HOSPITAL.

William R., aged twenty-seven, nativity United States, married, painter by occupation. Upon the evening of November 1, 1890, this man was entertaining a neighbor at his house with a liberal supply of beer; both became very much intoxicated, and were amusing themselves by breaking furniture, fighting, etc., when the wife of Mr. R. returned from a shopping expedition, and among her purchases was a new knife to be used in the kitchen for paring potatoes, etc. This knife has a short wooden handle and a blade about five inches in length, with one straight edge, the other curved, and at that time was as sharp as a razor and an exceedingly dangerous instrument to get into the possession of a person in Mr. R.'s condition. Mr. R. took the knife from his wife and flourished it around the head of his neighbor, and then, without warning, plunged it up to the hilt into his own left breast. The excuse he gave me for so doing was, that he supposed he had his putty-knife and that he was going to strike himself with the handle of it, as he had often been in the habit of doing. This excuse may be taken for what it was worth, as I accepted it; but, at any rate, if he intended committing suicide, his desire to die abated as soon as he fully understood what had been done and the likelihood of his having so nearly accomplished it, for I have never seen a patient more willing to obey instructions and do everything in his power to facilitate his recovery. I was called to attend him about 9.30 P. M., the injury having been inflicted about fifteen minutes earlier. I found my patient lying upon a bed and in a condition of mild surgical shock. His garments about the wound were saturated with blood. He had removed the knife, and the injury had apparently sobered him considerably. His pulse was rapid and weak; respiration very shallow, weak, and almost entirely diaphragmatic; in fact, the left side of his thorax moved scarcely at all. He coughed frequently, and brought up mouthfuls of bright arterial blood, which was frothy from intermixture with air. Upon removing the clothing, I found a wound, an inch in length, between the fourth and fifth ribs, an inch anterior to and extending up to the lower border of the nipple. There was some bleeding from the external wound. A probe, thoroughly cleansed and rendered aseptic by a solution of 1-to-1,000 mercury bichloride, was passed into the wound. It took a downward and outward course through the intercostal muscles and fasciæ about two inches, and then dipped directly down into the lung tissue. Upon effort at deep inhalation, air bubbled through the external wound intermixed with blood. A small area of dullness in the lower part of the pleural cavity indicated a condition of hæmothorax, and the patient complained that he could feel the blood dripping down internally—possibly an illusion. Nevertheless, I did not consider this hæmorrhage due to a wound of the intercostal artery, but merely of a capillary character from the external wound, though undoubtedly arterial branches had been severed in the lung substance. I gave him a drachm of normal liquid ergot to arrest the internal hæmorrhage; had bottles of hot water placed at his sides and feet; and, as he rallied from the condition of shock, the pain became so severe that I gave him a hypodermic injection of morphine $\frac{1}{4}$ gr., atropine $\frac{1}{150}$ gr. I very carefully cleansed the skin around and about the external wound with a warm solution of bichloride of mercury (1 to 1,000), and, carefully separating the edges of the wound, irrigated the external part of the wound with a solution of the same strength, being careful not to use sufficient force to drive it into the pleural cavity, for I did not wish to add to this man's troubles that of mercurial poisoning. A few strands of thoroughly aseptic catgut were placed between the external lips of the wound, care being taken that they did not reach more than half-way down to the pleura, for, while I deemed it essential to have a little drainage, I did not wish it to interfere with solid healing of the wound from the bottom; neither did I wish it to act as an opening wedge, allowing air to be drawn into the pleural cavity. The drain was fastened into position by adhesive plaster, and the external wound closed with a catgut suture. Iodoform was dusted over the surface of the wound. It was then dressed with iodoform gauze, and over that pads of cotton incased in sublimate gauze were placed, and over all I used a heavy bandage, four inches and a half wide, applying the same as tightly as possible, the object of this being to entirely restrict any motion of the affected side, and thereby give it an opportunity to heal, working upon the same principle as in the case of a fractured rib. Absolute rest in bed was advised and agreed to by the patient. After the first dose of a drachm of ergot, twenty minims were given every fifteen minutes for an hour, and after that hourly for possibly three or four hours, although I felt satisfied that internal hæmorrhage had ceased before I left the house, which was about two hours after the infliction of the injury. In examining the wound, I was unable to determine whether the pericardium had been injured or not, but felt that if it had not been it certainly had had "a very close call." My prognosis given to the family was naturally very unfavorable.

November 2d, 10 A. M.—Under the influence of the anodyne the patient had rested quietly during the night. Temperature, 100°; pulse, 80; respiration, 24. Given small doses of calomel every two hours for the derivative effect. Liquid diet ordered. It was found necessary to give a tablet triturate of $\frac{1}{4}$ gr. morphine and $\frac{1}{150}$ gr. atropine every four hours to overcome pain. Breathing entirely abdominal.

4.30 P. M.—Temperature, 99·2°; pulse, 90; respiration, 30. Feeling quite comfortable. The area of dullness at the bottom of the pleural cavity had not increased any since the previous evening, thus indicating an absence of internal hæmorrhage since that time. Half an ounce of sulphate of magnesium was ordered to facilitate the action of the calomel, and the treatment continued as before.

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* Read before the Medical Society of the County of Dutchess at its semi-annual meeting, June 10, 1891.

3d, 9 A. M.—Did not rest well during the night, on account of the bowels being painfully distended from the accumulation of gas, no movement of the bowels having yet been obtained, which was undoubtedly due to the anodyne counteracting the influence of the cathartic. A steady, dull pain in and about the wound, rendered much worse by any attempt at deep inspiration. Temperature, 102°; pulse, 108; respiration, 34 and very shallow. Physical signs indicative of a small amount of traumatic pneumonia and pleurisy had developed during the night, but that which surprised and alarmed me most was to find that my patient had acute pericarditis. Whether this condition was due to a wound in the pericardium or to an extension of the inflammation of the adjoining lung and pleura I am unable to say, but it seems to me that the fact of the pericarditis developing simultaneously with the pneumonia would argue in favor of the pericardium having been wounded. The patient had an anxious expression, and his bowels were distended and tympanitic. He was given a turpentine-and-oil enema, with the desired result. Ordered a minim of fluid extract of digitalis every second hour, and two grains of carbonate of ammonium every hour in a drachm of liquor ammonii acetatis; hot applications over the inflamed lung and pericardium.

4 P. M.—Was seen in consultation with Dr. E. H. Parker. Diagnosis confirmed, and treatment acquiesced in.

4th, 9 A. M.—Had rested quite well. Bowels had moved thoroughly. Temperature, 101·5°; pulse, 96; respiration, 34. The area of dullness over the lung was the same as on the previous day; but, upon my entering the room, the patient saluted me with the remark that his heart seemed to be splashing into water every time it beat, and I found that an effusion was taking place into the pericardium. Same treatment continued.

5th, 9.30 A. M.—Temperature, 100°; pulse, 88; respiration, 30. Passed a comfortable night. I now for the first time removed the dressings from the wound, it having been four days and a half since they were applied, and was gratified to find primary union, except where the catgut drain prevented its uniting. A light dressing and bandage were reapplied. The area of cardiac dullness had not increased over that of the previous day.

4.30 P. M.—Patient passed a very comfortable day. Temperature, 100·5°; pulse, 92; respiration, 30.

From this time on the patient steadily improved; the temperature, pulse, and respiration gradually came down to the normal. In about ten days the pericardial effusion was reabsorbed, yet he was not allowed to get out of bed and assume an erect posture until about three weeks had elapsed from the date of his injury.

Five weeks from the date of injury he had resumed his usual business.

Dermatol.—Under this name, says the *Druggists' Circular and Chemical Gazette*, "a basic gallate of bismuth is being put forward as a substitute for iodoform. It is described as an extremely fine, non-hygroscopic, odorless, saffron-yellow powder, stable toward air and light, and insoluble in the ordinary solvents. On account of its insolubility its anti-bacterial action is limited to the part where it comes into direct contact with the microbes, resembling iodoform in this respect. The astringent action of the preparation is also said to influence the process of healing, while on the other hand it causes no irritation and is not absorbed. This preparation is further said to be valuable when administered internally in affections of the stomach and intestines, and it is stated that it is non-poisonous."

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, SEPTEMBER 5, 1891.

AN UNUSUAL CASE OF NASAL POLYPUS.

Mr. A. Marmaduke Sheild reports the following instructive case in the *Lancet* for July 4th: The patient was a woman advanced in life, who had enjoyed good health until five months previously, when she noticed obstruction of the left nostril, which gradually increased. She also complained of an aching pain in the left eye and of lacrymal obstruction. On examination, the left nasal passage was found filled by a large polypus, having the usual gelatinous consistence and appearance of the myxomatous nasal polyp. The tumor was mobile and pedunculated. There was no expansion of the nose and the naso-pharynx was free. While he was examining the connections of the growth with a probe it bled freely. This symptom led to the suspicion that the growth might prove to be malignant. After applying cocaine the tumor was removed with the wire snare. The hæmorrhage was pulsatile in character and very profuse. Two weeks later there was a return of the growth. It was again removed with the snare, and the nasal passage was quite clear after the operation. In another fortnight the nose was again obstructed and Mr. Sheild advised opening the nose laterally. This was done under ether anæsthesia. On introducing the finger, firm lobules of the growth could be felt which obviously had their origin from the antrum. It was therefore decided to remove the entire jaw, and this was done at once. The whole antrum was filled with a malignant growth. Although the operation was done as rapidly as possible, the bleeding was profuse and at its close the patient was pulseless and seemed moribund. She rallied, however, under the administration of stimulants and ultimately made a good recovery.

In commenting upon this case Mr. Sheild states that the clinical signs which denote malignancy in a nasal polypus are a tendency to bleed freely, rapidity of growth, and the advanced age of the patient. All these were present in the case. He considers it principally interesting, however, as showing how insidious and deceptive may be the origin and progress of antral tumors. None of the ordinary signs of antral distention were present, yet the whole cavity was filled with a growth that had evidently gained ingress to the nose by the orifice of the antrum. In the nose the tumor assumed a polypoid shape, growing freely there, rather than expanding its bony surroundings. The hæmorrhage during the operation was so great that without skilled assistance and prompt resuscitating measures the patient would probably not have survived. Mr. Sheild therefore suggests the advisability of placing a temporary ligature on the carotid in cases of vascular tumor of the jaws, especially when the patient has been exhausted by previous bleedings. The case emphasizes the caution with which we should regard cases of polypus of the nose in adults when they are of rapid growth. They are likely to be malignant, and have deeper connections than it is possible to ascertain by inspection. Partial operations with the snare or forceps are useless, and the free removal of the affected bone as early as possible affords the only chance of long immunity from recurrence.

POINTS IN URETERIC SURGERY.

DR. PEZZER, in a paper read before the French Surgical Congress, which is reviewed in the *Union médicale*, has called attention to some new sounds by which he practices permanent catheterism of the bladder. The instruments are made of pure rubber, so that they may be safely and thoroughly sterilized by boiling or steaming. They are constructed by M. Mathieu with a soft, elastic bulb at the extremity, which becomes effaced upon the introduction of a stylet and reproduces itself when the latter is withdrawn. The comfort with which these instruments were borne in the bladder caused Dr. Guyon to suppose that similar sounds might be left in the ureters after operations upon the bladder, and thus give the latter organ complete rest until cicatrization and healing had taken place. These small catheters have therefore been made, capable of retaining themselves in the ureter by the elastic pressure of their bulbs upon the ureteric walls. They were first used in dogs successfully, and afterward, by M. Guyon, in the case of a young woman upon whom he had operated for tuberculous ulceration of the neck of the bladder. The experiment was altogether successful, and the case was reported to the *Société de biologie* by M. Albarran, a student of M. Guyon's.

The report produced a contention upon the point of priority in the operation of permanent catheterism of the ureters, M. Poirier alleging that Pawlik, Segond, and he himself had each practiced the method before M. Guyon. The facts in the case show, however, that these operators had left their instruments in the ureters for from thirty-six to forty-eight hours only, while M. Guyon had left his in for many days. If this latter fact does not constitute a new method, it certainly is a great improvement upon the earlier ones.

This question of priority, however, is of small moment compared with the startling observations that M. Poirier afterward brought before the society upon this same subject of catheterism and injection of the ureters. He asserted that oil or grease injected into the ureter with a certain amount of force passed into the renal vein without any rupture of the kidney tissue, and, *vice versa*, that the injection of oil into the renal vein shows itself in the ureter. These facts, says Poirier, should have been observed by all anatomists, but, lest it be objected that the occurrence is a post-mortem phenomenon, he has shown, he says, that water injected into the ureter of a living anæsthetized dog passes out in waves or jets through the renal vein. From these alleged facts one may be led to recognize the necessity of extreme caution in the practice of ureteric catheterism and injections, for the liquid may be forced back into the blood through the kidney tissue, thus producing thrombosis or nephritis. Moreover, should the catheters become obstructed or be inadequate to the demands upon them, the retained urine may filter back into the blood, and thus cause systemic poisoning.

MINOR PARAGRAPHS.

THE NEW YORK STATE BOARD OF HEALTH.

THE *Eleventh Annual Report* of this board is a two-volume issue of more than nine hundred pages. It is copiously illustrated with drawings of approved plans for local sewerage and water supply for twenty towns and villages, which are highly instructive as to the progress of sanitary enterprise throughout the State. The ventilation of the Capitol at Albany is referred to and a full description of the details is promised, and is in fact referred to as appearing as an appendix of this report, but it is nowhere discoverable. This ought to be furnished, since the expenditure involved in these repairs of ventilation and drainage, in a building not yet completed and for which an appropriation of $56,000 has not been sufficient, exceeds the entire cost of a year's operations of the board in other directions. The board itself can not be regarded as an extravagant one, for the sum of $22,000 covers all its ordinary outlays. And the board has a goodly amount of work performed to show for this expenditure, especially in the department of food and drug inspection. About 800 examinations of pharmacopœial preparations are reported for the year 1890. The measures thus far taken by the board for the correction of adulteration abuses have been admonitory rather than punitive, and they are defended by the report as being the best, under existing circumstances, chiefly on the ground that pharmacy is undergoing rapid changes; it is growing up into a science, its practice is rapidly becoming a profession, "and the work carried on by the board has had a direct and important influence in raising the business of the pharmacist to a higher plane. Certainly in no calling are thorough knowledge and skill, honesty and accuracy, more essential than in pharmacy, and the number of pharmacists possessing those qualifications is rapidly increasing, largely as a result of recently enacted laws." The Barren Island nuisance, so called, is reported upon with great detail, and much personal attention is given to the subject by members of the board. It is conclusively shown that no nuisance need exist if the factories are supplied with the proper stench-quelling apparatus. This report is one of the best of its series.

A NEW MODE OF ADMINISTERING THE BROMIDES.

THE *Pharmaceutical Record* remarks that in Paris the pharmacists have of late been astonished by the increasing number of prescriptions they have been called upon to dispense wherein the bromides are combined with naphthol and bismuth. This new departure is simply the practical carrying out of some suggestions made last year by Professor Féré, of the Salpêtrière, that large doses of the bromides tended, in certain individuals, to beget unpleasant symptoms chiefly for the reason that the gastro-intestinal tract of such persons was in a condition of sepsis that prevented the proper assimilation of the drugs. He recommended the administration of such intestinal antiseptics as naphthol and salicylate of bismuth as a means of removing drug intolerance from this and from other causes. The following formula is one method found by him to be advantageous, in the treatment of epileptics especially: ℞ Potassium bromide, 1½ drachm; beta-naphthol, 1 drachm; salicylate of sodium, ½ drachm. Mix and divide into three doses, one dose to be given three times daily. It is maintained by Féré that this treatment is curative as well as preventive. He has found that the eczema and psoriasis which sometimes follow in the train of borax will also disappear if the intestinal tract is rendered aseptic. To the formula above given some Paris physicians are in the habit of adding $\frac{1}{30}$ of a grain of sulphate of strychnine.

EPHEDRA VULGARIS IN RHEUMATISM.

The *Nouveaux remèdes* for August 8th refers to the success of T. V. Biekhtine (Bolnitchn. Gaz. Botkina) with this plant in the treatment of rheumatism and allied painful affections. From the root and stems of the plant a decoction is made, a tablespoonful of which is given every two hours until the painful symptoms have subsided. In acute arthritis and muscular rheumatism the therapeutic action of the ephedra is most potent, diminishing the pain in two hours, reducing and toning up the pulse, and lowering the temperature. The temperature remains normal after the fifth or sixth day of the treatment, the tumefaction around the articulations gradually disappears, and by the end of a week or ten days recovery is almost complete. The therapeutic action is not so marked in the chronic forms of these diseases. In several cases of rheumatic osteomyelitis the author was surprised at the rapidity with which the symptoms were alleviated with a decoction of ephedra. The action of the drug is distinctly diuretic.

AN ANTISEPTIC MOUTH WASH.

Professor W. D. Miller, of Berlin, read a paper entitled The Human Mouth as a Focus of Infection before the Section in Bacteriology at the recent International Congress of Hygiene and Demography. According to an abstract of the paper published in the *Lancet* for August 15th, the author thought that an examination of the results of attempts to sterilize the fluids of the mouth would soon convince one that there were very few substances at present in the dental materia medica that were available for disinfecting the human mouth. A mouth wash recommended by him years ago, which he still considers decidedly superior to the best of the many so-called antiseptic mouth washes on the market, consists of twelve parts of benzoic acid, sixty of tincture of eucalyptus, four hundred of absolute alcohol, and three of oil of peppermint. It is to be inferred that such a mixture would have to be diluted very largely, and that the alcohol employed will cease to be "absolute" at once.

A REMINISCENCE OF A WELL-KNOWN BOTANIST.

The elder generation of students of the natural sciences will remember the late Professor Alphonso Wood's text-books on botany. That author during his earlier life was not given to this study, however, but to that of geology, and it was his brother-in-law, Dr. Albert G. Skinner, whose death we recently noticed, that gave him his first lesson in botany. The two men subsequently pursued this science much together, and during a stroll after plants one afternoon the botanist discovered a new species of *Gerardia*, and immediately named it after his physician, friend, and companion. In his works it was duly described as *Gerardia skinneriana* (Wood), thus commemorating the relations existing between the two scientific men.

THE INDISCRIMINATE USE OF MINERAL WATERS.

In a recent number of the *Saratoga Union* Dr. R. C. McEwen very properly deprecates the indiscriminate use of the Saratoga waters by the general public. It is to be wondered at that the proprietors of the springs encourage the practice, for it is quite sure ultimately to breed skepticism as to the medicinal virtues of the waters.

THE BIRTHDAYS OF VIRCHOW AND HELMHOLTZ.

According to the *Lancet's* Berlin correspondent, Helmholtz attained the age of seventy on August 31st, and Virchow will reach the same age on October 13th. The students of the University of Berlin are to celebrate both birthdays by a *Commers* to be held on November 7th.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 1, 1891:

DISEASES.	Week ending Aug. 25.		Week ending Sept. 1.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	0	0	0	0
Typhoid fever	34	18	37	8
Scarlet fever	57	16	76	6
Cerebro-spinal meningitis	0	0	6	4
Measles	47	4	67	1
Diphtheria	63	25	64	19
Small-pox	0	0	0	0
Varicella	1	0	0	0
Whooping-cough	5	0	2	0

The American Association of Obstetricians and Gynæcologists will hold its fourth annual meeting in the New York Academy of Medicine's building on Thursday, Friday, and Saturday, September 17th, 18th, and 19th.

The Yale Medical School.—Graham Lusk, Ph. D., who has been a student of Professor von Voit's for the past three years, has been appointed to lecture on physiology for the coming year, in place of Dr. Thacher, deceased.

The Medical Society of Virginia.—The twenty-second annual meeting will be held at Lynchburg on the 6th, 7th, and 8th of October, instead of on the 27th, 28th, and 29th, as previously announced.

Change of Address.—Dr. Leonard S. Rau, to No. 72 West Fifty-fifth Street.

The Death of Dr. Abram Du Bois, of New York, took place on Saturday, August 29th. Dr. Du Bois was eighty-one years old, and had for many years been a prominent practitioner. He was a man of exceptional devotion to the interests of his profession, as is notably attested by large gifts to the Academy of Medicine.

Society Meetings for the Coming Week:

Monday, *September 7th:* Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Medical Society of the County of Chemung (quarterly—Elmira), N. Y.; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *September 8th:* New York Medical Union (private); Medical Societies of the Counties of Chemung (quarterly—Elmira) and Rensselaer, N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Baltimore Obstetrical and Gynæcological Society.

Wednesday, *September 9th:* New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Societies of the Counties of Albany and Montgomery (quarterly), N. Y.; Philadelphia County Medical Society.

Thursday, *September 10th:* New York Academy of Medicine (Section in Pædiatrics); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, *September 11th:* Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties.

Book Notices.

Surgical Bacteriology. By N. SENN, M. D., Ph. D., Professor of Surgery in the Rush Medical College and the Chicago Policlinic, etc. Second Edition, thoroughly revised. Philadelphia: Lea Brothers & Co., 1891.

THIS second edition of Dr. Senn's work needs no introduction to those acquainted with the first. The division into chapters, the indexing, and the general appearance of the book, are all improvements upon the former edition.

The chapters upon Antagonism among Micro-organisms, Tuberculosis, and Actinomycosis Hominis are well worthy of a second reading.

To one who would thoroughly understand the doctrines of aseptic and antiseptic surgery the work will be of great service, if not indispensable. The book is a monument to the energy and industry of the author, who in an exacting profession and with a large practice can find time and inclination to do so much technical and literary work. The descriptions are clear and concise, the illustrations are well executed, and the typography is good, with the exception of being a little too crowded for a work of this size. The book in its present form is well worth a place in any medical library.

BOOKS, ETC., RECEIVED.

Professor Koch's Method, and the Results of its Application in Twenty-five Cases of Pulmonary and Laryngeal Tuberculosis. By Karl von Ruck, B. S., M. D., Asheville, N. C. [Reprinted from the *Therapeutic Gazette.*]

A Pathological Condition of the Lungs hitherto Undescribed in this Country but which is not Infrequent. By F. Peyre Porcher, A. B., M. D., Charleston, S. C. [Reprinted from the *Journal of the American Medical Association.*]

The Nervous Features and Sequences of La Grippe. By Archibald Church, M. D., Chicago. (Read before the Chicago Medical Society, June 1, 1891.)

A New Intestinal Clamp. By A. V. L. Brokaw, M. D., St. Louis. [Reprinted from the *St. Louis Medical and Surgical Journal.*]

Report on Cholera in Europe and India. By Edward O. Shakespeare, of Philadelphia, A. M., M. D., Ph. D., United States Commissioner. Washington: Government Printing Office, 1890. Pp. xxiv–945.

The Mother's Hand-book: a Practical Treatise on the Management of Children in Health and Disease, with an Appendix containing Articles on Diseases and Accidents that may suddenly happen to Grown Persons. By Levin J. Woollen, M. D. Richmond, Va.: Everett Waddey Co., 1891. Pp. 9–11 to 419.

Stories of a Country Doctor. By Willis P. King, M. D., First Vice-President of the American Medical Association, etc. With Illustrations by T. A. Fitzgerald. Philadelphia: Hummel and Parmele, 1891. Pp. 11–13 to 397. [Price, $1.]

The Vest-Pocket Anatomist (founded upon "Gray"). By C. Henri Leonard, A. M., M. D., Professor of the Medical and Surgical Diseases of Women and Clinical Gynæcology, Detroit College of Medicine, etc. Fourteenth Revised Edition. Containing Dissection Hints and Visceral Anatomy. With 193 Illustrations. Detroit: The Illustrated Medical Journal Company. 1891. Pp. 5 to 297.

Origin, Purpose, and Destiny of Man; or, Philosophy of the Three Ethers. By William Thornton. Boston: Published by the Author, 1891. Pp. 12–13 to 100.

Practical Intestinal Surgery. By Fred. B. Robinson, B.S., M. D., Professor of Anatomy and Clinical Surgery, Toledo Medical College, Toledo, Ohio. Vol. II. Detroit: George S. Davis, 1891. Pp. 206. [Price, 25 cents.] [The Physician's Leisure Library.]

Du paludisme et de son hématozoaire. Par A. Laveran, Médecin principal, Professeur à l'école du Val-de-Grace, etc. Quatre planches en couleur et deux planches photographiques. Paris: G. Masson, 1891. Pp. xi–300.

Transactions of the Medical Society of the State of California, Session of 1891.

A Clinical Report on Intravenous Saline Infusion in the Wards of the New Orleans Charity Hospital from June, 1888, to June, 1891. By Rudolph Matas, M. D., Visiting Surgeon. [Reprinted from the *New Orleans Medical and Surgical Journal.*]

Resorcin as an Antipyretic. By W. Carroll Chapman, M. D., of Louisville, Ky. (Read before the Kentucky State Medical Society, May, 1891.)

Subjective Light Sensations following Enucleation of the Eyeball. By J. Walter Park, M. D., Harrisburgh, Pa. [Reprinted from the *Archives of Ophthalmology.*]

Report of Proceedings of the Illinois Army and Navy Medical Association, held at Springfield, Ill., May 18 and 19, 1891.

Index-Catalogue of the Library of the Surgeon-General's Office United States Army. Authors and Subjects. Vol. XII. Reger–Shuttleworth. Washington: Government Printing-office, 1891. Pp. 1004.

Practical Pathology and Morbid Histology. By Heneage Gibbes, M. D., Professor of Pathology in the University of Michigan; formerly Lecturer on Normal and Morbid Histology in the Medical School of the Westminster Hospital, London, etc. Illustrated with Sixty Photographic Reproductions. Philadelphia: Lea Brothers & Co., 1891. Pp. xi–17 to 320. [Price, $2.75.]

Notes on New Remedies, including those on the Additions to the British Pharmacopœia of 1890. Compiled by E. B. Shuttleworth, Dean and Professor of Chemistry, Ontario College of Pharmacy, etc. Toronto: Monetary Times Printing Co., 1891. Pp. 4–5 to 87.

Istituto di clinica oculistica della R. Università di Napoli. Lavori eseguiti negli anni scolastici 1889–1890, dai Dottori De Vincentiis, Prof. Carlo, Diretore Sgrosso Pasquale, 1° Coaduitore Moauro Giovanni, 2° Coaduitore Tailor Ugo, 1° Assistente Poligani Luigi, 2° Assistente Antonelli Alberto, assistente straordinario. Con tavole litografiche e figure nel testo. Napoli: V. Pasquale, 1891.

Estudios de Pediatría. Cálculo vesical adherente en un Niño. Historia clinica y estudio general de la cuestion. Por el Doctor D. Andrés Martinez Vargas, Catedratico de Enfermedades de Niños de la Universidad de Granada, etc. Madrid: Administración de los *Anales de Obstetrica, Ginecopatía y Pediatría.*

The A. C. E. Mixture. By J. C. Reeve, M. D., Dayton, Ohio. (A Paper read before the Ohio State Medical Society at its meeting in Toledo, June 16, 1891.) [Reprinted from the *Cleveland Medical Gazette.*]

Diphtheritic Paralysis. By Lewis H. Adler, Jr., M. D. [Reprinted from the *American Lancet.*]

Normal Liquid Ergot in Enuresis Nocturna. By Lewis H. Adler, Jr., M. D. [Reprinted from the *Medical Age.*]

The Status of the Hydrochlorate of Cocaine in Minor Surgery, as based upon the Experience of Philadelphia Physicians. (Read in extract before the D. Hayes Agnew Surgical Society, March 6, 1891.) By Lewis H. Adler, Jr., M. D., Philadelphia. [Reprinted from the *Therapeutic Gazette.*]

Cocaine as a Local Anæsthetic in Cases requiring Amputation of the Digits, with a Report of Fifty such Operations in which the Drug was employed. By Lewis H. Adler, Jr., M. D. [Reprinted from the *Medical Age.*]

Constitution and By-laws of the Medical Society of the County of Clinton, with a List of Members, Officers, etc., to the Present Time, preceded by a Brief Account of its Early History. Plattsburgh, N. Y.: J. W. Tuttle & Co., 1891.

Second Report of the Superintendent of the Johns Hopkins Hospital, for the Year ending January 31, 1891.

The Association of American Anatomists, organized at Washington, D. C., September 17, 1888. History, Constitution, Membership, and the Titles and Abstracts of Papers, for the Years 1888, 1889, 1890.

Miscellany.

The Evolution of Local Sanitary Administration was the subject of the address in public medicine delivered at the recent meeting of the British Medical Association, by Edward Seaton, M. D., F. R. C. P., lecturer on public health, St. Thomas's Hospital, and medical officer of health for the administrative county of Surrey. The address, for advance proofs of which we are indebted to the *British Medical Journal*, was as follows: When the Council of the British Medical Association conveyed to me their wish that I should deliver the address in public medicine, it was, I confess, with somewhat mixed feelings that I received the invitation. While fully sensible of the honor done me by so important a duty being intrusted to my hands by a body which has always taken a leading part in the furtherance of sanitary progress, I was too conscious of my own deficiencies to be able to undertake the task with a light heart. An additional cause of embarrassment was the difficulty of choosing a subject which should be in some degree worthy of such an occasion and of such an audience. I have selected The Evolution of Local Sanitary Administration as the theme of my discourse, because the subject, though not perhaps inspiring to an orator, is one with which a considerable and varied official experience has made me tolerably familiar. Furthermore, in respect of one important part of sanitary administration—namely, the management of isolation, epidemic, or, as they are sometimes called, infectious hospitals—I may claim to have taken my share of voluntary work during the past few years in the metropolis. The interest which a subject so closely connected with the health and well-being of the public must necessarily have for all those engaged in active warfare, public or private, against disease will, I hope, dispose you to overlook any shortcomings in my treatment of it.

Sir John Simon, in the very remarkable work entitled *English Sanitary Institutions*, which he gave to the world at Christmas, 1889, has traced with the brilliancy of literary coloring and the *lucidus ordo* in the marshaling of facts, of which he is an acknowledged master, the beginnings of sanitary administration in this country. This will form a lasting record of the way in which our local and central systems of sanitary administration came into existence. Subsequent explorers in the same field will, I venture to predict, find little else to do but to follow in the ineffaceable "footprints in the sands of time" left by Sir John Simon. It is not, I need hardly say, my intention even to attempt in this address to approach the subject from the wide standpoint which our great medical philosopher, the *maestro di color che sanno* in the domain of sanitary science, has taken in his classical work. My aim is a comparatively humble, though not, I trust, an altogether useless one.

Leaving out of consideration the earlier stages of our sanitary development, I propose in the short time at my disposal to touch only on what has taken place during the last two decades under the eyes, as I may say, of the majority of my hearers. Speaking from actual and continuous experience of what has been done since the passing of that most important of all sanitary measures, the Public Health Act of 1872, it may not be unprofitable if I bring before you a few points which seem to me in an especial manner worthy of the consideration of the medical profession in general, and of that larger world outside it which looks to us for guidance.

State of Things before 1872.—Let me first briefly recall the state of things which existed before 1872. Before the passing of the Public Health Act there were very few medical officers of health outside London. There were, indeed, medical men who nominally occupied that position and performed the duties now recognized as appertaining thereto, but they did so on the understanding that their advice and assistance were to be given only as occasion seemed to call for them. The municipal authorities in those days appear to have thought, like a distinguished general of the present time, that medical advice is an excellent thing "when it is asked for"; they looked upon their officers of health as mere sanitary referees whose opinion might be taken under certain circumstances as a sacrifice to official propriety without in any way influencing their decision. In the larger towns the greater part of the sanitary administrative work was performed by an official who was generally called the sanitary inspector. From my own experience I can testify that these posts were sometimes held by men of very high intelligence and integrity of character who performed their difficult duties in a manner worthy of great praise. Owing, however, to their not being possessed of medical and scientific knowledge or professional position, they could not be expected to exercise the influence, the need of which was beginning to be felt in the councils of the sanitary authorities. In the smaller towns and in the rural districts, notwithstanding the existence of the Nuisances Removal and other acts, there was yet but little attempt to carry out their provisions.

The Public Health Act.—By the Public Health Act of 1872 a new order of things was created, and in particular the sphere of medical and scientific influence in local sanitary administration was very largely extended. One most important and far-reaching effect of that act was the policy adopted in consequence of it by the corporations or town councils of certain large towns, notably in the North and in the Midlands. The municipal authorities appointed medical officers of health of a type altogether different from the sanitary referees to whom allusion has already been made. Instead of professional Balaams called in to bless or curse as the corporation might require, or at best to deliver themselves, like a Greek chorus, of edifying sentiments to which no one gave heed unless it suited him to do so, the medical officers of health of the new creation were intended to be skilled advisers with whom authorities should take counsel *circa ardua regni*, and by whose opinion on matters within their province they should be guided. The medical officer of health was to be at his post to be constantly on the lookout for ways in which the public interest, present and future, might be served in his own sphere. He was to be ever on the watch, "*ne quid detrimenti respublica capiat*," and his chief function was to be the exercise of a continuous pressure in all the important branches of municipal work relating to the health of the community. The influence thus obtained by men of medical and scientific education in the shaping of the policy of local authorities, and the recognition of this kind of professional advice as an essential factor in sanitary administration, have been of incalculable advantage to the public health, and it is not too much to say that by the Act of 1872 a peaceful revolution was accomplished which has done more for the greatest happiness and welfare of the greatest number in this country than all the political subversions recorded in our annals. The policy of giving so important a part in sanitary administration to scientific experts was the object of much criticism at the time. It was argued even in those days, as it is sometimes argued now, that it is unnecessary to engage the whole services or whole time of a medical officer of health, the subjects with regard to which the special knowledge possessed by such an official was required being so few. To the question of "whole service" I may refer incidentally later on.

What I am chiefly concerned with here is to point out that in my opinion the essentially good thing in these early appointments to which I have referred was that they secured for the public authorities which made them the continuous influence of specially educated medical men, an independent power of themselves, in the organization and direction of local sanitary administration. Without that influence, which was something entirely different from the non-continuous casual advice, which was all that so-called medical officers of health could render before, the vast progress which has been made in the sanitary condition of this country could never have been achieved. Let any one examine the reports that have been published annually and on special occasions since 1872 by the authorities of the larger English towns and combined districts, from Newcastle-on-Tyne in the north to Portsmouth in the south, and he will find abundant evidence that it is through the exercise by medical officers of health of the continuous influence to which I have referred that we are indebted for some of the most important advances in local sanitary administration which have subsequently produced their effect in a much wider sphere. Taking one of these reports as an illustration, the subjects dealt with included the following: The building regulations for new houses; the sanitary improvement of old houses; the arrangements for public water supply both as to quantity and quality; sewerage and drainage; removal of excreta and refuse;

the regulation of cowsheds, dairies, and milkshops; the prevention of smoke from factories; effluvia from noxious trades and nuisances from stables, etc.; the provision for public vaccination and revaccination; the enforcement of the powers of the Public Health Act relating to infectious diseases; the action taken by the local authority with regard to the prevention of the sale of unwholesome food and the adulteration of food, drugs, etc.; the securing recreation grounds, baths, and wash-houses; the regulation of burial grounds and cemeteries; the action of the sanitary authorities with regard to uncertified deaths, and the neglect of infants.

Reports of this kind may not unfairly be said to cover the whole field of practical sanitation, and it needs no argument to show that they must necessarily have a great and legitimate influence in shaping the policy and guiding the action of the sanitary authority which receives them.

Legislation as to the Construction of New Houses.—The most important result of the continuous influence of medical advice on those responsible for local sanitary administration is seen in the enactments relating to the construction of new dwelling houses, which have been passed since the Public Health Act of 1872 became law. Before that time the central and inhabited poorer quarters in most of the great towns of England were mere "rookeries," the denizens of which lived under conditions of overcrowding and insanitary environment which nowadays are only to be seen in the more squalid parts of London and some of the seaport towns. To take as an example a town of which, from long official connection, I have special knowledge, the older part of Nottingham was twenty years ago one of the most densely populated in England. The authorities had done their best to cope with the evil, and so far back as in 1845 an Inclosure Act had been passed by which the legal restrictions which formally prevented the green fields and pastures surrounding the town from being encroached upon for building purposes were removed. Impressed with the necessity of preventing overcrowding on space, they unfortunately, like most early reformers, went too far in the opposite direction, and imposed conditions as regards the number of rooms and the amount of curtilage to each house, which went a long way to defeat the purpose they had in view. The new houses were used to accommodate two families instead of one, or people went to live in the suburbs, where the jerry-builder had things all his own way, and where, consequently, the houses became, in point of sanitary condition, about on a par with those of the old town. What that was I myself had to describe in forcible terms in a report On the Sanitary Condition of the Borough of Nottingham, which I presented to the Health Committee in 1873. The houses were built very close together on a comparatively small area, large numbers of them being "back to back"; many of them were situate in narrow yards or closely confined courts and alleys, and a large proportion of them were very dirty and dilapidated; they were, moreover, rendered specially unhealthy by the old midden system, which prevailed in its worst form. During the following ten years the condition of things rapidly and materially improved. The structural defects which made houses in the crowded parts specially unhealthy were entirely altered, and some of the worst areas of crowded dwellings were dealt with in a comprehensive way; but the most important improvements were in the direction of the homes of the future. In 1874 the Nottingham Improvement Act was obtained, whereby the details of construction and sanitary arrangements of new buildings were strictly regulated, and in 1878 a further act was obtained by which it was provided that every owner of a new building should be liable to heavy penalties if he allowed it to be inhabited without first having had it inspected and certified as free from sanitary defect by the building surveyor, who was in daily communication with the health officer. During the five or six years following 1874 what was practically a new town came to be built, capable of housing a population at least equal to the whole of Nottingham before the Inclosure Act, and, speaking from my own experience as medical officer of health during the period referred to, I can say that all reasonable sanitary requirements, in the case of the new buildings, were, on the whole, met in a satisfactory manner.

Between 1873 and 1878 local acts of Parliament were obtained by the authorities of several other important towns, which defined the conditions under which new buildings could be erected; these conditions related to the sites to be used for building purposes, the width of streets, the provision of light and air about houses, the prevention of dampness, and for efficient drainage and the ventilation of drains. It can not be denied that London is far behind many less important centers of population in these respects; to take only one example, the overcrowding of narrow spaces with the huge so-called "model blocks" which have sprung up like architectural weeds, if I may use the expression, in various parts of the metropolis during the past fifteen years, would certainly not have been allowed in many provincial towns where ground is equally valuable.

The Model By-laws of the Local Government Board.—The beneficial results of these local acts can scarcely be exaggerated, seeing that they not only improved the healthiness of the towns to which they particularly related, but they influenced public opinion elsewhere, and finally led to the promulgation of the "Model By-laws of the Local Government Board," which are now in process of being generally adopted throughout the country. It may be useful here to enumerate these model by-laws, which have a wide scope, and the adoption and enforcement of which is so immensely important. The series may be summarized as follows: 1. By-laws for scavenging, removal of house refuse, keeping of animals, and the prevention of nuisances generally. 2. By-laws for promoting the cleanliness and ventilation and for the general well ordering of common lodging houses. 3. By-laws relating to new streets and buildings: (*a*) with respect to the width, level, and construction of new streets; (*b*) with respect to the structure of walls, foundations, roofs, and chimneys of new buildings, for securing stability and the prevention of fires, and for purposes of health; (*c*) with respect to the sufficiency of space about buildings to secure a free circulation of air, and with respect to the ventilation of buildings; (*d*) with respect to the drainage of buildings, and to the closing of buildings or parts of buildings unfit for human habitation, and to prohibition of their use for such habitation; (*e*) as to the giving of notices; as to the deposit of plans and sections by persons intending to lay out streets or to construct buildings; as to inspection by the sanitary authority; and as to the power of such authority to remove, alter, or pull down any work begun or done in contravention of such by-laws. 4. By-laws relating to the licensing, registering, and inspection of slaughter houses, for the purposes of cleanliness, etc.

Provision for the Enforcement of By-laws.—But it is not enough to have model by-laws; regulations which on paper breathe the very spirit of administrative wisdom are useless if not strictly enforced. A most important step, therefore, was taken by some of what I may call the "pioneer" corporations, when in addition to obtaining building acts and framing by-laws they made really adequate provision for giving due effect to them. This they did by not only appointing a special building surveyor, but by further making the officer of health responsible with that official for the manner in which those most important duties were discharged. Having regard to the paramount importance of securing that the sanitary arrangements of all new buildings shall be as perfect as possible, the provision that has just been indicated was indeed a necessary complement of the by-laws. Here I should like to dwell for a moment on a point to the importance of which the public mind is, even in these days of a new sanitary dispensation, perhaps hardly sufficiently alive. From what has been said, it will be obvious that in respect of the efficient carrying out of these by-laws, and similar administrative functions, the medical officer of health is the very keystone of the administrative arch. Indeed, no phase of sanitary administration illustrates with greater force the need for an exceptional combination of qualities for the thoroughly efficient discharge of such duties as those which should of right belong to the office. For to him the public has especially to look for protection from ignorant obstructiveness on the one hand, and from unscrupulous greed on the other An ideal officer for such an important post ought to be a man of exceptional qualities, for he must have a wide and accurate knowledge of medical and sanitary science, and be possessed of sufficient strength, guided (or "informed," as the scholastics say) by tact, to withstand the hostility, secret or declared, of some of those in authority, and the subtler influences of social environment. But in order that the medical officer of health may discharge his arduous duties with the fullest possible advantage to the public, the office which he holds should in itself confer dignity commensurate with the heavy responsibilities which it puts upon him. With a competent and independent medical officer, such as I have sketched in my ideal, in a position giving his voice the authority which should belong to it in local administrative councils, there would be far greater security than there is at present that no selfish indifference to the common weal, no neglect of obvious precautions for the safety of the community, no tampering with the public health, would be allowed to go unexposed or unresisted, however wealthy or influential the offenders might be.

Notification of Infectious Diseases.—The supporters of the principle of local self-government point with natural pride and satisfaction to the fact that it is through the operation of this principle that some of the more important parts of recent sanitary legislation have been brought about. No better illustration of the effect on the whole nation of the efforts of those authorities who, of their own accord, undertake the immensely difficult task of experimental legislation can be given than the local legislation of 1872–'82. I need only instance the act requiring the notification of infectious diseases—a measure which was first introduced by the Town Council of Bolton, in Lancashire, in 1877, and which by the Imperial Act of 1889 was applied to London, and has since become very generally adopted throughout the whole country. That act has, as you all know, given rise to a good deal of controversy into which it would be inappropriate to enter here; I mention it only as a striking example of the far-reaching effect which the tentative legislation of a local authority may have outside of its own limits, and of the important influence which the advice of medical experts has had in the development of sanitary administration.

How Actual Causes of Disease should be combated.—I may also point to notification as illustrating the great advantage of directing sanitary administrative action to the suppression or neutralization of the actual, as well as the potential, causes of disease. The public have not yet learned the lesson—which is a pregnant truth, though it sounds like a truism—that different diseases require to be controlled by different methods. They are still under the dominion of what Carlyle would have called a "formula"—which was most useful in its day, though hardly adequate to our present needs—that the cause of all disease is dirt, and that sanitary salvation is, therefore, to be found in well-flushed drains. The danger of this simple creed is that when the faith which has been pinned too absolutely on cleanliness as a universal safeguard is shaken by the discovery that there are diseases which the most ingeniously devised system of drainage is powerless to prevent, sanitary science as a whole may be unjustly discredited, and may be treated as the savage treats the fetich which has failed to produce the desired effect. The chief value of the notification of infectious diseases is, in my opinion, that it enables sanitary authorities, basing their action on medical and scientific knowledge, to wage war directly against the actual causes of the mischief that are in operation in any given case (such as a water supply, a milk supply, a school, etc.) instead of wasting their energies in twirling the sanitary mop among potential causes. It should be clearly understood that notification in itself is only a means to an end, and that it can be useful only when the immediate causes of the diseases notified are accurately known and amenable to control. But within its legitimate sphere it is invaluable. Taking the diseases included in the schedule, a well-organized municipal health department may deal with them effectively from the preventive point of view in the following manner: Small-pox, by increased activity of primary vaccination as provided for by statute, by isolation of the sick person as far as practicable, and by formation of a cordon of revaccinated persons around. Typhus, by hospital isolation and vigorous sanitation in the infected locality. Scarlet fever and diphtheria, by skilled and systematic inquiries, followed, if necessary, by directions respecting milk supplies; by the limitation of school attendance, and by the offer of suitable hospital accommodation. Enteric fever, by skilled inquiries respecting the possibilities of contamination of water or milk supplies, by inspection and testing of house drains, by general attention to the sanitary surroundings of the dwellings, etc.

The advantages of notification from the official standpoint may be summed up in general terms as follows: 1. It affords early and complete knowledge of a rising epidemic. 2. It allows of the exercise of the powers of the Public Health Acts, especially with regard to the spread of infection. 3. It enables the officer of the authority to offer hospital isolation, and, in the case of small-pox, revaccination, when and where these are most needed. 4. It leads to inquiry by skilled persons into the drainage of houses and localities. 5. It affords the means of controlling schools, factories, and workshops, by whose agency epidemics may arise. 6. It makes at once apparent the grouping of cases round water supplies, milk supplies, and schools, and thus becomes a powerful agency in limiting the spread of disease.

Other Things required besides Notification.—It is not, however, sufficiently understood that the mere notification of infectious diseases can not produce any very remarkable results in checking their spread, unless it is complemented by the provision of an efficient sanitary staff with an experienced medical officer at its head, and by adequate isolation hospital accommodation with measures of disinfection. The first of these requirements—namely, the sanitary staff or health department—is a matter of administration in which, generally speaking, it can not be denied that there is still a great deal to be done in the way of medical improvement. The question, however, of how this needed reform is to be effected is hardly yet ripe for discussion, and I therefore pass on to the second requirement—namely, the provision of isolation hospital accommodation. As an illustration of what the needs of a very large town are in this respect and of how they have been met I may take the work of the Metropolitan Asylums Board. As the work of that board is comparatively little known, a brief sketch of what it has done and is now doing may not be out of place here.

The Metropolitan Asylums Board.—Twenty-five years ago very few even of the large towns had any means at all of isolating cases of fever in separate buildings. In London there were the Small-pox and Vaccination Hospital at Highgate and the Fever Hospital in the Liverpool Road; neither of these institutions, which still have independent existence, however, has ever been in any sense municipal. The former was open to bad cases of small-pox while the latter received cases of typhus, which was then endemic, and severe cases of enteric fever and scarlet fever. Patients suffering from these diseases were also admitted to the general hospitals. But the great majority of fever cases, especially those of a mild character, which are so important from a public-health point of view, were treated at their own homes, where proper isolation was often out of the question. The Metropolitan Asylums Board was constituted by the Metropolitan Poor Act of 1867, the purpose of which was to establish in London "asylums for the sick, insane, and other classes of the poor." The passing of this act, it should be mentioned, was largely due to the efforts of members of our association, the late Dr. Anstie and Mr. Ernest Hart being the chief movers. The intention of the legislature at that time is clearly indicated by the name of the act and by the use of the term "asylums." It was to relieve the workhouses of the infectious sick and the insane and to provide means of isolation for cases which could not be safely and conveniently received within the workhouse walls. The board was almost entirely composed of representatives of Poor-law authorities, and though it was destined later on to have important sanitary functions, the sanitary authorities, as such, had no place in it. The vestries, which in other respects were sanitary authorities, have been blamed for not taking independent action in establishing hospitals for the infectious sick, but few who have had practical experience of the difficulties of hospital provision and administration, or who are acquainted with the intricacies of the boundaries of the London parishes, can doubt that this work is far better left in the hands of a board or central authority which can look to the needs of London as a whole.

The following is a list of the hospitals which have been established by the Metropolitan Asylums Board: The Eastern Hospital at Homerton, occupying a site of nine acres, and affording accommodation for from 400 to 500 persons attacked with fevers. This hospital serves one of the poorest quarters of London, the population of which is estimated at over a million. The South Eastern Hospital in the Old Kent Road, Deptford, occupying a site of eleven acres, and affording accommodation for between 400 and 500 cases of persons attacked with fevers, together with provision for doubtful cases of small-pox "under observation." This hospital serves a population of nearly a million. The South Western Hospital at Stockwell, occupying a site of eight acres, and affording accommodation for between 300 and 400 persons attacked with fever. This hospital serves a population of about half a million. The Western Hospital at Fulham, occupying a site of six acres, and affording accommodation for between 200 and 300 persons attacked with fever. This hospital serves a district of nearly three quarters of a million, but it is a part of London where the need for hospital isolation is not so frequent as in the east. The North Western at Haverstock Hill, Hampstead, beautifully situated, and occupying a site of eleven acres, affording accommodation for between 400 and 500 persons attacked with fevers, and serving a population of over three quarters of a million. In connection with three of these hospitals—the Eastern, South Eastern, and Western—there are very perfectly appointed ambulance stations, which serve for the whole of London. Then there is the river ambulance for the communication with the small-pox hospital ships lying in the river Thames at Long Reach. There are three ambulance wharves at Wandsworth, Blackwall, and Rotherhithe, and five ambulance steamers admirably adapted for the conveyance of sick persons down the river. The hospital ships are moored in the river Thames at Long Reach. They comprise the Endymion, which is used for administrative purposes and the accommodation of the staff, and the Atlas and Castalia, which are appropriated for the treatment of small-pox patients. The total accommodation for patients is 350, 200 being on the Atlas and 150 on the Castalia. Abreast of the ships is a piece of ground, eight acres in extent, belonging to the board, upon which the laundry attached to the ships and other administrative buildings have been erected. A pier has also been constructed, and is used for purposes connected with the ships, and the transfer of patients to and from the Convalescing Hospital at Gore Farm, Darenth, which has accommodation for 600 persons. The Endymion is in telephonic communication with the chief offices. There is also the Convalescent Hospital for fever cases at Winchmore Hill, which provides for about 400 cases in the stage of convalescence.

It will be seen, therefore, that the total amount of provision of hospital accommodation is not far short of one bed to every 1,000 of the population, which is the requirement for public-health purposes. This is, of course, not taking into account the admirable and most useful establishment at the Liverpool Road, Islington, which has 200 beds, or the 100 beds at the Highgate Small-pox Hospital.

The excellent example set by the Metropolitan Asylums Board in providing suitable hospital accommodation for the infectious sick has been followed by several large towns, and before long no town of any importance will be without such means of isolation. The Epidemic Hospital at Bagthorpe, near Nottingham, is one of the latest and most perfect examples of a hospital of this kind.

On the other hand, the Asylums Board has not been above taking a lesson from the provincial sanitary authorities in respect of the free admission of all cases of infectious disease, whether the patients might be paupers or not, into rate-supported hospitals. The wisdom of this policy is beyond all question, for to make the order of the relieving officer the necessary passport to the isolation hospital is to make the use of the accommodation offered by it a badge of social disgrace which the respectable wage-earning classes would do everything in their power to avoid. It need not be pointed out how seriously this would interfere with the immediate isolation of infectious cases, which is the only effectual way of preventing the first sparks of an epidemic from spreading into a destructive conflagration. It is largely due to the influence of Dr. Brewer, Sir Edmund Currie, and Sir Edwin Galsworthy, former and present chairmen, together with that of several other influential members, that the Metropolitan Asylums Board was led to adopt a public-spirited policy which many of their colleagues thought to be outside the proper province, if not also beyond the legal powers, of that body.

The Metropolitan Asylums Board was, as has been said, established for a specific purpose, and it must, I think, be admitted that it has not only discharged the functions originally assigned to it, but has instituted much other work of the highest public utility. Its position, however, has been greatly changed by recent legislation.

The Formation of County Councils.—Mr. Ritchie's. Local Government Act led to the formation of county councils. These councils were intended, among other things, to be the chief sanitary authorities of counties, and they will doubtless become so in future. Here we are met by the question of "sanitary units," which will have to be determined before very long; at present, however, it is hardly sufficiently ripe for discussion. Leaving out of view for the present the details of sanitary administration, attention may with advantage be directed to certain points in which the influence of county councils is already to some extent, and ought to be still further, exercised. There is clearly no province of sanitary administration in which that influence can be exerted with more immediate benefit to the community than that connected with the control of epidemic or isolation hospitals. Indeed, the county councils already have the control of the large lunatic asylums—what more natural than that they should also have relegated to them the other asylums (already in London under a central body), and the special epidemic hospitals in which we, as sanitarians, are interested? This arrangement would, in one most important particular, simplify our present very complicated system of sanitary administration; and in London the County Council seems in some measure to have anticipated this proposal by the appointment of a medical officer who, in addition to his other eminent qualifications for that important post, has had special experience in the organization and management of isolation hospitals. The fact that the London County Council already has a responsible medical adviser, while the Metropolitan Asylums Board—a second central body—with its thousands of sick persons passing annually through its hospitals, has to depend, for the indispensable help which such an officer can give, on casual and necessarily irresponsible councilors, forms a strong argument in favor of transferring to the former body the powers at present possessed by the latter with regard to the provision and regulation of isolation hospital accommodation. It would be easy for me to give abundant illustrations of the great disadvantage to the public of the Metropolitan Asylums Board being cast adrift, as I may say, on the troubled waters of sanitary administration, with no medical pilot to help guide their course; but as the subject does not, strictly speaking, come within the scope of this address, I need not enter on it here.

On the whole, it appears to me that the time has now arrived when the Metropolitan Asylums Board might be allowed to fade out of existence, like an organ that has served its purpose, and can only be an encumbrance if it survives. The process of evolution would then be complete in London so far as one important part of sanitary administration—namely, the provision of hospital accommodation for infectious diseases—is concerned.

County Sanitary Administration.—Turning next to the question of county sanitary administration, on which I have as yet touched very slightly, I may indicate, as a first step toward its development, that county councils may, with immediate advantage, undertake that part of sanitary administration which is evidently much better in the hands of a central authority. This need involve no interference with local or district authorities as regards sanitary administration, and the precedent of London shows that it would not be regarded as infringing the sacred principle of local self-government. As things are at present, the arrangements for the isolation of infectious diseases in many parts of the country can only be described as an administrative chaos. Many towns of considerable size are still without proper accommodation of any kind for such cases, while in others such provision as has been made is utterly inadequate. Moreover, owing to the division of authority and the absence of efficient control by local centers, administration anomalies—in the highest degree absurd, if they were not deplorable—have arisen. This is explained by the fact that the rural sanitary authorities have, in some instances, erected hospitals for their own use, while the towns in the district have not shown the same foresight. Thus we find hospitals situated near to large populations, the most important sections of which are denied their use. In this way it has happened that a hospital admirably adapted for the reception of infectious cases has stood empty when almost at its doors were patients of the very kind it was designed to accommodate, who, owing to the intricate machinery of local self-government, which is a part of our existing constitution, could not be admitted within its walls. I need not dwell on the inconvenience and injury to individuals and the dangers to the community at large that may arise from administrative pedantry of this kind. The transference of the power of regulating the provision of isolation hospital accommodation to the county councils is the only means of remedying the state of things which I have here attempted to describe and of saving the unnecessary suffering to patients and expense to rate-payers entailed thereby.

Lines of Future Evolution.—With regard to the future evolution of sanitary administration there is not much that can be profitably said at the present moment. The important questions now floating in the legislative atmosphere as to the advisability of transferring vaccination powers to the county councils, and as to the formation of sufficiently large areas for administrative purposes, must be left for solution till the opinions of men of light and leading on these subjects have had time to condense into practical conviction, and to infiltrate the minds of sanitary authorities. It may be said in general terms, however, that it is desirable that future evolution should be in the direction of greater simplicity in organization, and a nearer approach to uniformity in the size of sanitary districts and in the methods of administration than exists at present. Here let me remind you that the question of "whole service" or other restrictions must obviously depend on considerations of administrative areas. The absurdity of considering them apart, as Parliament has done this session, is best illustrated by taking an extreme case, one of the tiniest and most impracticable areas. For example, Ham, near Richmond, in Surrey—"umbrageous Ham"—is a separate sanitary administrative area, with its own sanitary staff. The population is only 1,400—that of a mere hamlet. Now, if there could be found a medical officer willing to sacrifice his "whole time" and actually to reside on the spot, there would still be the difficulty arising from emolument. This amounts to £12 per annum. Of course the remedy for this is the creation of workable districts for sanitary purposes within counties, and until that has been done it is premature to adopt the whole-service formula. I would not, however, be understood as advocating a cut and dry system, in which the country should be parceled out into trim parterres like a magnified Dutch garden, governed by authorities acting with the rigid uniformity of mechanical puppets. There is something very distasteful to the English mind in anything that savors of centralization or the restraint of administrative individualism by cast-iron rules; but, on the other hand, I think, most thoughtful sanitarians will agree in considering the present freedom of local authorities from all control is sometimes rather apt to degenerate into administrative license, with serious consequences to those immediately affected thereby, and to the community at large.

In conclusion, while thanking you for your kind attention to these somewhat desultory remarks, I would express a hope that no one will think the subject of this address unimportant. though it is too likely that I may have failed to make it attractive. The details I have touched on are the framework of a vast living structure, all the parts of which should work together for the common good. The perfecting of this structure, the clothing of the dry bones of sanitary administration with the flesh of scientific knowledge and well-directed practical action, should be the aim of all legislators and authorities, and of all practitioners of curative, not less than of preventive, medicine.

The Supposed Curative Effect of Operations Per Se.—Under this title Dr. J. William White, of Philadelphia, contributes a paper to the *Annals of Surgery* for August, which, not only from its subject, but from the great number of authorities quoted and from the peculiarly rich experience of the writer, makes an article of unusual interest and importance to both surgeon and physician. The author's attention was first directed to this subject by reason of his experience with the operation of trephining for so-called traumatic epilepsy.

During the past five years, with Dr. D. Hayes Agnew, he has trephined in fifteen cases of supposed traumatic epilepsy. All but one patient recovered from the operation. The one who perished was an imbecile and a confirmed drunkard as well as an epileptic. Death occurred from suppression of urine, probably secondary to etherization.

In one case a bullet was found imbedded in the brain substance, in another an irregular portion of the internal table was dissected out from beneath the dura mater, to which it was attached by cicatricial adhesions. In another there were projecting spicules of bone on the internal surface of the button removed and the adjacent portions of the skull. In two, marked sclerosis and thickening of the cranium were observed about the field of operation. In the remaining cases nothing abnormal was seen. Although this was the case, the patients were without exception notably improved by the trephining, in two instances even to the point of apparent cure, no return of the symptoms having been observed for eighteen months and for two years, respectively, after the operation. In the seven others the results were strikingly favorable, convulsions disappearing for weeks or months, although previously of more than daily occurrence.

The author has, in so far as this is possible, classified the cases in which an operation seemed to be *per se* the main factor in bringing about a cure. These cases are divided into three groups in accordance with the anatomical seat of the symptoms or of the supposed disease. This brings them under the following heads: 1. Operations for the relief of nervous phenomena, such as epilepsy, insanity, paralysis, etc. 2. Operations for abdominal and pelvic disorders, such as peritonitis, tumors, etc. 3. Miscellaneous operations.

This classification is further carried out by grouping together: (*a*) Those cases in which nothing whatever was found explanatory of the symptoms; (*b*) those in which some departure from normal conditions was observed, but was so slight as to be apparently inadequate to explain the symptoms; (*c*) those in which an apparently grave and irremediable condition was disclosed by an exploratory operation, but notably improved or altogether disappeared after mere inspection or handling, no further surgical interference having been thought justifiable.

Under the heading of Operations for the Relief of Nervous Phenomena Dr. White has tabulated, including his own service, one hundred and fifty-four cases. Many of them are given in detail, and, coming as they do from recognized authorities, are of exceeding great interest.

In fifty-six cases of trephining for epilepsy nothing abnormal was found to account for the symptoms. Twenty-five of these patients were reported as cured and eighteen as improved, and in three cases it was mentioned that a relapse occurred subsequently.

In thirty cases of ligation of blood-vessels for epilepsy fourteen patients were reported as cured, fifteen as improved, and one as having died seven days after the operation. In the fatal case the right common carotid artery was tied. No fit occurred after the operation.

In ten cases of castration for epilepsy all the patients were reported as cured.

In nine cases of tracheotomy for epilepsy two patients were reported as cured, six as improved, and one as much improved, though death in this case followed in two months after the operation.

In twenty-four cases of removal of the superior cervical ganglia of the sympathetic nerve six patients remained well at the end of three years, ten were improved, five remained unimproved, and two died soon after the operation, but not from its direct effect.

In six cases of incision of the scalp for epilepsy nothing was found to account for the symptoms. Three of these patients were reported as cured at the end of three months or less, one as cured at the end of a year, two as cured at the end of two years, and two others in almost similar cases as cured.

Twelve patients with epilepsy were reported as cured by such operations as stretching of the sciatic nerve, excision of the musculo-cutaneous nerve, cauterization of the larynx, circumcision, the application of a seton to the back of the neck, tenotomy of the external recti muscles, burning of the scalp, puncture of the heart, etc.

Thirteen cases of spontaneous or accidental cures of epilepsy are also reported, at a time varying from two months to five years after the traumatism, which was a fall, a burn, a wound, an amputation for intercurrent injury or disease, etc.

Passing from the cerebral to the spinal region, Dr. White cites an illustrative case of his own. A man, aged fifty-five, was attacked on December 25, 1887, with severe pains in his arms and shoulders. A few days later there was weakness of the thighs, spreading rapidly down the legs to the feet and upward on the body to the nipple line. In eight days there was absolute paralysis of the parts involved, including both sphincters, while at the same time the paralyzed parts became the seat of profound anæsthesia. Girdle pains developed, bed-sores made their appearance, and percussion of the spine over the third and fourth vertebræ became painful. The reflexes were exaggerated, and light blows on the head in the direction of the spinal axis gave rise to frightful exacerbations of the girdle pains. In spite of every remedial measure these symptoms increased in severity for ten months. An exploratory operation was then undertaken. Dr. White removed the spines and laminæ of the first five dorsal vertebræ, opened the slightly thickened dura, separated some firm adhesions to the subjacent pia, explored the cord, and, having failed to discover any serious pathological changes, closed the wounds in the dura and soft parts. The girdle pain had entirely disappeared by the following day, sensation began to return in the feet on the day after, voluntary motion in the toes returned after the eighth day, and so one symptom after another disappeared until the patient completely recovered and is now earning his living by manual labor.

In the list of abdominal and pelvic disorders apparently cured by operation *per se* a number of extraordinary cases are cited. The experience of Tait, who has more than once drawn attention to the astonishing disappearance of tumors, often of large size, after a mere exploratory incision, and the corroborative testimony of von Mosetig are cited at length. König's analysis of 131 cases of tubercular peritonitis treated by abdominal incision is carefully discussed.

In response to letters of inquiry upon the subject Dr. White has received many communications from prominent operators, the great majority of them containing notes of cases not previously published. Among the writers of these letters are to be found Goodell, Hirst, Battey, Roswell Park, Lusk, Cheever, Charles T. Parkes, Cabot, Hunter McGuire, Nancrede, Weir, Stimson, and many others of equal note.

Under the heading of miscellaneous operations the author has given several of very diverse character. First are quoted cases of osteomalacia cured, after weeks or months of confinement to bed, by either oophorectomy or Cæsarean section.

Passing to another subject, the question of graduated tenotomy of the eye muscles for the relief of severe nervous symptoms is carefully discussed. The author freely acknowledges the value of tenotomies, both complete and graduated, in the restoration of equilibrium in badly balanced ocular muscles, but he is none the less convinced that in numbers of instances of reported cures of chronic chorea, *petit mal*, and even delusional insanity, the effect of the operation *per se* is in large measure the potent cause of the supposed cure. This belief is founded not alone on theory, but upon the fact that in certain cases of reflex nervous troubles a cessation of the symptoms has followed the tenotomy, although this has not produced perfect equilibrium. Again, the relapses which may take place after a perfectly successful series of tenotomies would indicate that the nervous phenomena attributed to the insufficiency, for the relief of which the operations were made, were not correctly so attributed, and that the temporary relief must be ascribed to some cause other than the correction of an imperfect balance of the external ocular muscles. In seeking for a reasonable explanation of the phenomena observed in such cases the author has formulated the conditions that are common to nearly all of them: 1. Anæsthesia. 2. Psychical influence, or so-called mental impression. 3. The relief of tension. 4. Reflex action, or the "reaction of traumatism." These influences were operative in the majority of cases, although not one of them, except the last, applies to the whole list.

With the idea that it was conceivable that a disease of the nerve centers not reached by ordinary drugs might be affected by agents of such volatility and diffusibility as ether and chloroform, the author instituted a series of observations upon a number of epileptics in various stages of the disease. All other treatment was discontinued, and ether was given to the production of full anæsthesia at intervals of from forty-eight to seventy-two hours. Either the results were entirely negative or, in consequence of the withdrawal of their bromides, the patients grew worse.

Since in the great majority of cases upon which Dr. White bases his paper there were either undoubted symptoms such as are habitually associated with organic disease or demonstrable and unmistakable evidences of such disease, it is necessary to believe, in considering the psychical influence of an operation, that powerful impressions acting upon the emotional or intellectual nature may affect the organic processes of secretion, nutrition, etc., and may arrest pathological changes and bring about reparative or recuperative action. Cases are cited in which such influences are clearly set forth.

The author holds that the normal equilibrium which we witness between the cerebro-spinal and the sympathetic systems, as respects their influence upon the blood-vessels, is obviously more or less interfered with when the brain transmits a more than wonted impulse, allowing the unrestrained action or paralyzing the influence of the sympathetic vaso-motor nerves. In this relation the author narrates some remarkable cases of hypnotism and cites some striking examples of the effect of the central nervous system upon the body.

The belief is expressed that in many of the cases described there can be little doubt that relief of tension was an important factor in the amelioration or cure. If it is assumed that preternatural tension exists in the cranial cavity, this would be relieved to an extent by trephining, and there would be but few exceptions to the rule that in each case something was done which lessened tension in a cavity or organ of the body. A diminution of the tension would manifestly alter the blood supply to any important organ in the body, and with it the nutritive processes, local and general. Beyond this nothing definite can be said except as it applies to cases of ascites, in which, as in cases of dropsy of a joint, one tapping may prove permanently curative because the original source of irritation and supersecretion has already disappeared.

Under the head of Reflex Action the author includes the "reaction of traumatism" as well as the effects of revulsion and counter-irritation.

Verneuil long since showed that very slight traumatism sometimes excited in the entire economy a general perturbation, and sometimes, by selection of the weak point, sudden aggravation of lesions that were only slight or had slumbered. This same excitement, usually prejudicial, may occasionally be curative. Dr. White believes that in the case of spinal surgery above detailed the local shock of the operation was promptly followed by a corresponding reaction in which the vitality of the tissues was raised sufficiently high to determine a return to the normal state. In this relation the reciprocal influence of one portion of the body on another is briefly discussed.

In considering abdominal tumors, attention is called to the possibility of the spontaneous disappearance of such tumors, the relation of this disappearance to the operation being coincidental. Cases are cited in point. As to the cure or amelioration of growths thought to be malignant by merely exploratory operation, a long search through the literature of the subject has met with but little success.

The cure of tuberculosis of the peritonæum as the result of exploratory incision is explained on the ground that the removal of ascitic fluid allows the peritoneal surfaces to fall together and to acquire adhesions. The tubercles are then shut in between the coils of intestine, the omentum, and the abdominal wall. They are thus surrounded by tissues in a high degree of activity which can now throw around them the limiting zone of young cells and eventually fibrous tissue which, if the tuberculous process is not too far advanced, may effectually resist it and may cause it to retrograde, the process being analogous to that which we see imperfectly going on around a cancerous growth.

As a result of a study of the subject the author believes the following conclusions are warranted:

1. There are large numbers of cases of different grades of severity and varying character which seem to be benefited by an operation alone, some of them by almost any operation.

2. Those cases include chiefly epilepsy, certain abdominal tumors, and peritoneal effusions and tubercle, though the improvement in the latter is, perhaps, to be explained on general principles.

3. Of the possible factors which, by reason of their constancy, must be considered, anæsthesia seems least likely to have been effective. The three others—viz., psychical influence, relief of tension, and reflex action—may enter in varying degrees into the therapeutics of these cases, and, taken together, serve to render the occurrence of occasional cures less mysterious.

4. The theory of accident or coincidence scarcely explains the facts satisfactorily.

Sir Joseph Fayrer on Preventive Medicine.—The *Lancet* for August 15th prints the following address delivered by Sir Joseph Fayrer,

K. C. S. I., M. D., F. R. S., before the Section in Preventive Medicine of the Seventh International Congress of Hygiene and Demography:

Gentlemen: My first duty on occupying this seat is to make fitting acknowledgment of the honor which has been conferred on me and to assure those to whom I am indebted for it that, as I appreciate the distinction highly, so, with the aid of my colleagues in this Section and the support of the many eminent men of science who will take part in its work, I hope to discharge faithfully the important trust reposed in me. My next and most agreeable duty is to offer to all who honor us with their presence, or who propose by co-operation to forward the objects of the congress, a most hearty welcome and cordial recognition of the interest in it manifested by their presence; to express a hope that the deliberations and conclusions which result from their wisdom and experience may advance our knowledge and tend to enhance the welfare of the human race. This hope is based upon the universal recognition of the need of and capacity for improvement in the conditions upon which physical well-being, immunity from disease, and prolongation of life depend; and this is evinced by the assembling together in this congress of men of science from all parts of the world, who have devoted themselves to the great international humanitarian purpose of ameliorating the conditions of mankind everywhere, so far at least as the application of the laws of health, and to some extent those of sociology, can affect this consummation. To all, then, we in this great city, who are interested in the progress of hygiene and demography, offer our cordial greeting and express an earnest desire that our visitors may derive pleasure and benefit from their sojourn in London and from the proceedings of the great assembly of which they form so important a part.

Before I invite Dr. Cuningham to open the first subject for discussion it is right that I should make a few preliminary remarks on the general scope and objects of the work comprised in this Section. I do not intend to occupy much of the short and valuable time at our disposal by discussing any special subject or by anticipating that which those who follow me may have to say, but shall confine myself to a brief notice of the present aspects of preventive medicine, its recent development, how much it has operated and is now operating for the public good, how slowly but surely it is dispelling the cloud of ignorance and prejudice which has overshadowed and impeded the progress of sanitation, and how it is gradually imbuing the public mind with the conviction that prevention is better and often easier than cure, that health may be preserved, disease avoided, and life prolonged by the study and observance of certain well-known laws, which, correlating the individual with his surroundings, determine his well-being when conformed to, deteriorate or prevent it when neglected, and should enforce the maxim, "*Venienti occurrite morbo.*" Unprecedented progress in human knowledge characterizes the present century, and has not been wanting in preventive medicine. It is, however, during the last half of it that advance has been most remarkable, while it is in a later part of that period that it has so established itself in the popular mind as to have passed from the region of doubt and speculation into that of certainty. It is now pretty generally understood that about one fourth of all the mortality in England is caused by preventable disease, that the death-rate of large communities may be reduced much below that at which it has been wont to stand, the average duration of life may be made to approximate nearer to the allotted fourscore, and that the conditions of living may be greatly ameliorated. The chief obstacles to improvement have been ignorance and want of belief; a better knowledge of the laws of life and health, a more rational comprehension of the nature and causes of disease, are gradually but surely entailing improvement in the conditions of living and in the value of life, and the diminution and mitigation, if not extinction, of morbid conditions which have in past times proved so injurious or destructive to life. In short, as Dante says:

"Se' l mondo laggiù ponesse mente
Al fondamento che natura pone,
Seguendo lui avria buona la gente."
Paradiso, viii, 142.

Such are the subjects contemplated in the work of this Section, and, as far as time permits, the most interesting of them will be discussed. Those selected are of great importance in their relations to public health; let us hope that observers who have formed their opinions from experience in other countries and under different circumstances may throw new light on them.

In the brief space of time at my disposal it would be impossible to give a continuous outline of the progress of preventive medicine during the past, or to trace its growth and development out of ignorance and superstition to its present well-established foundation on a scientific basis. It is of happy augury for mankind that the subject of public health is now fairly grasped by popular sentiment, and that, though ignorance, opposition, and vested interests still contest the ground, progress is sure, and the light of science is illuminating the dark places. It is now better appreciated than it ever has been, that the causes which induce disease and shorten life are greatly under our own control, and that we have it in our power to restrain and diminish them, and to remove that which has been called "the self-imposed curse of dying before the prime of life." It is, indeed, only recently that the resources of medical science have been specially devoted to the prevention as distinguished from the cure of disease, and how far successfully I hope in a few words to show, while I trust the proceedings of the various Sections of this congress will indicate how much remains to be done. Did time permit, I might illustrate the progress of preventive medicine by contrasting the state of England with its population of more than twenty-nine millions during the Victorian with the England of the Elizabethan age with its four millions. I might remind you of the frightful epidemics which had devastated the land in the forms of black death, sweating sickness, plague, petechial typhus, eruptive fevers, small-pox, influenza, and other diseases, such as leprosy, scurvy, malarial fever, dysentery, etc.; of the wretched mode of living, bad and insufficient food, filthy dwellings, and ill-built towns and villages, with a country uncultivated and covered with marshes and stagnant water (according to Defoe one fifteenth part of England consisted of standing lakes, stagnant water, and moist places, the land unreclaimed, and with the chill damp of marsh fever pervading all). The homes of the people were wooden or mud houses, small and dirty, without drainage or ventilation, the floors of earth covered with straw or rushes, which remained saturated with filth and emitting noxious miasmata. The streets were narrow and unpaved, with no drains but stagnant gutters and open cesspools, while the food was principally salted meat, with little or no vegetable. To this may be added a large amount of intemperance and debauchery. As it is, I can only just allude to them. In such conditions disease found a congenial nidus, and by a process of evolution assumed the various epidemic forms which proved so destructive to life. Some of these have gone, let us hope never to return, and the conditions which fostered if they did not cause them have gone also. Can we venture to hope that it will be the same with those that remain? Our immunity during the last diffusion of cholera gives some ground for thinking it may be so, if indeed the legislature and popular intelligence should be of accord on the subject.

If we turn to the present, we find that great improvements have gradually been made in the mode of living; the houses are better constructed, the drainage and ventilation are more complete, the land is better cultivated, and the subsoil better drained; marsh fever and dysentery, at one period so rife, are unknown, and leprosy has long since disappeared. The death-rate is considerably reduced and the expectancy of life enhanced. Water is purer, food is more varied and nutritious, clothing is better adapted to the climate, the noxious character of many occupations has been mitigated, and the mental, moral, and physical aspects of the people altogether improved; education is general, a better form of government prevails, and the social conditions are far in advance of what they have been; but still the state of our cities shows that improvement is demanded, and one object of this congress is to point out why and how this may be effected, not only in this country, but throughout the world.

If we inquire into the effects of certain well-known diseases, we find that they are less severe in their incidence, if not less frequent in their recurrence. With regard to small-pox, since the passing of the first Vaccination Act in 1840, the death-rate has diminished from 57·2 to 6·5 per 100,000 for 1880–'84, though for the five years 1870–'74 it was 42·7, thus showing that there was still much to be learned about vaccination. Enteric fever was not separated from typhus fever before 1869, but since then the death-rate has decreased from 0·39 to 0·17 per 1,000, and it has been shown that this improvement was synchronous in different parts of England with the construction of proper drains. The diminution in the death-rate from typhus fever is quite as striking, and this also is shown to have run parallel with improved sanitation in more than one large town. The death-rate from scarlatina fluctuated between 97 and 72 per 100,000 between the years 1851 and 1880, and though it has diminished considerably of late years (17 per 100,000 in 1886), a corresponding increase in the death-rate from diphtheria has taken place; this may be due in part to a better differentiation of the two diseases. In 1858 it was reported that phthisis killed annually more than fifty thousand people; the death-rate from this disease has not decreased very much for England and Wales, but it has done so in some large towns, notably in Liverpool, and Dr. Buchanan and Dr. Bowditch, of Massachusetts, both showed a striking parallelism between the diminution of the death-rate from this cause and the drying of the soil resulting from the construction of sewerage works. Cholera first appeared in England in 1831, and there were epidemics of it in 1848–'49, 1853–'54, and 1865–'66, but the number of deaths diminished each time it appeared, and, though it has been present since, it has never reached the height of an epidemic. This is fairly attributable to local sanitary rather than to coercive measures. Preventable disease still kills yearly about one hundred and twenty-five thousand, and, consideringt he large number of cases for every death, it has been calculated that seventy-eight millions and a quarter of days of labor are lost annually, which means £7,750,000 per annum; this does not include the days lost by the exhaustion so often induced by the still too numerous unhealthy houses of the poor. Towns, villages, and houses are still built in an insanitary way; the death-rate is still higher and the expectancy of life lower than it should be, and though we have got rid of the terrible plagues of the middle ages, yet in this century, now closing, other epidemics have made their appearance; cholera has four times visited us; fevers, eruptive diseases, and diphtheria have prevailed; influenza has appeared several times, even recently, and after leaving us last year, only to return with renewed virulence, caused in the United States a mortality almost equal to that of the plague. Much has been done, and a great deal of it in what is called the presanitary age, but much remains to be effected. Let us hope that the future may be more prolific of improvement than the past; international philanthropy seems to say it shall be so. That we can exterminate zymotic disease altogether is not to be expected, but there can not be a doubt that we may diminish its incidence, and though we may never be able to reach the "*fons et origo mali*," yet we can make the soil upon which its seed is sown so inhospitable as to render it sterile. The scope and objects of preventive medicine are not limited to the removing of conditions which give rise to zymotic disease, nor even of those which compromise otherwise the physical welfare of mankind, but should extend as well to a consideration of the best means of controlling or obviating those which, attending the strain or struggle for existence, involve over-competition in various occupations, whether political, professional, or mercantile, by which wealth or fame is acquired or even a bare livelihood is obtained, and under the pressure of which so many succumb, if not from complete mental alienation, from breakdown and exhaustion of the nervous system, which give rise to many forms of neurotic disease and add largely to the numbers of those laid aside and rendered unfitted to take their due share in the natural and inevitable struggle for existence. Or I might point to the recrudescence of those psychical phenomena manifested by the so-called hypnotism or Braidism, morbid conditions arising out of the influence of one mind upon another; this is a subject which demands not only further investigation, but great precaution as to its application, and claims the watchful notice of preventive medicine on account of the dangerous consequences which may ensue from it.

Again, the abuse of alcohol, opium, chloral, and other stimulants and narcotics, and the evil consequences which may result therefrom, is also a subject worthy of consideration, and will no doubt receive it in a communication which is to be brought before this Section.

The possible deleterious influence of mistaken notions of education, as evinced in the over-pressure which is exercised upon the young, the predominance of examinations, their increasing multiplication and severity, and the encouragement of the idea that they are the best test of knowledge, while true mental culture is in danger of being neglected, and physical training, if not ignored, left so much to individual inclination—this is another subject which demands the jealous scrutiny of preventive medicine, whose duty it is to safeguard the human race from all avoidable causes of either physical or mental disease.

Though preventive medicine in some form has been practiced since the days of Moses, yet it has received but little recognition until a comparatively recent period; when science developed and observation extended, medical men and others became impressed with the influence of certain conditions in producing disease, and thus it was forced upon the public conscience that something must be done; and when philanthropists like John Howard devoted life and property to the amelioration of such awful conditions as existed—*e. g.*, in our jails, where the prisoners not only died of putrid fever the result of ochletic causes, but actually infected the judges before whom they came reeking with the contagion of the prisons—rude sanitary measures gradually came into operation and partially obviated these evil conditions, but it was not before the middle of this century that any scientific progress was made; it was when Chadwick, Parkes, and others initiated the work by which they have earned the lasting gratitude of the human race that preventive medicine became a distinct branch of medical science. The sanitary condition of towns and communities is not dependent on the views or exertions of individuals alone, for they are and have been for the last fifty years largely cared for by the legislature, and a variety of acts have been passed which deal with questions concerning the public health; indeed, were all the provisions enforced, little would remain to be desired on the part of the executive Government, but, as many of them are permissive, not compulsory, the benefit is less complete than it might be. The old difficulty of prejudice combined with ignorance still too often stands in the way, and, despite evidence which on any other subject would be conclusive, the most obvious sanitary requirements are often ignored or neglected. Many thousands of lives have been saved by the sanitary acts now in force; but there is little doubt that more thorough organization under state control, as under a minister of public health, would have most beneficial results and would save a great many more. We must acknowledge, however, that we are much indebted to the action of the Local Government Board, under whose able administration the most crying evils are gradually being rectified. Through the wise precautions enacted by it against the importation and diffusion of epidemic diseases, when other parts of Europe were affected by cholera, this country escaped, or so nearly so as to suggest that it was to sanitary measures we owed our immunity. That there is something in the nature of epidemics which brings them under the dominion of a common law as to their extension seems certain; that there is much about them we do not yet grasp is equally true, but it is as surely the case that local sanitation is the preventive remedy as it is that coercive measures to arrest their progress are unavailing.

Under the improved system of sanitary administration which now obtains, and is gradually developing to a greater state of perfection, the sanitary administration of every district in the country is intrusted to the care of duly qualified health officers—a system from which excellent results have already accrued, and from which better still may be anticipated. The records of the past fifty years prove the influence exerted by sanitary measures on vital statistics. The first reliable tables from which the expectancy of life may be derived show that in 1838 to 1854 it was for males 39·91 years, for females 41·85 years; by the tables of 1871 to 1880 it had increased to 41·35 for males and 44·66 for females. It is shown also that the expectation of life increases every year up to the fourth year, and decreases after that age. For males up to nineteen years it is higher by the last tables, but after that age it is higher by the old table; for females it is greater by the new table up to forty-five, but after that age it is less. The improved sanitation saves more children's lives, but the conditions of getting a living are harder than they were at the time of the first table, which accounts for the expectancy of life for adult men being less. Women remain more at home, where the better sanitation tells, and are not subject to quite the same conditions as men, so that their expectancy of life is greater than by the old tables up to the age of forty-five. A further proof of the effects of sanitary work is a decreased death-rate. Let us compare the death-rates of England during past times with the present; whether they be equally significant for other countries I can not say, but these, at all events, sufficiently prove the point in question.

DEATH-RATE.

1660–'79	80	per 1,000	1870–'75	20·9	per 1,000
1681–'90	42·1	"	1875–'80	20·0	"
1746–'55	35·5	"	1880–'85	19·3	"
1846–'55	24·9	"	1885–'88	18·7	"
1866–'70	22·4	"	1889	17·85	"

In some parts of England, where the main object is the recovery or maintenance of health, the death-rate is down to 9 per 1,000, while in others, where the main object is manufacture and money-making, it is as high as 30 per 1,000. Nowhere, I think, have the beneficial results of sanitary work been better illustrated than in India during the past thirty years. A Royal Commission was appointed after the Crimean War to inquire into the sanitary condition of the British Army, and this in 1859 was extended to India. The European army was the special subject of it, but the native troops were referred to incidentally. Here the inquiry had to deal with a large body of men, concerning whom—their conditions of existence being well known—reliable information was accessible. It was ascertained that up to that time the annual death-rate over a long period had stood at 69 per 1,000. The inquiry resulted in certain changes and improvements in the housing, clothing, food, and occupation of the soldier. Since these have been carried out there has been a steady decline in the death-rate, and the annual reports of the Sanitary Commissioners to the Government of India give the rates as: in 1886, 15·18 per 1,000; 1887, 14·20 per 1,000; 1888, 14·84 per 1,000. During some years it has been even lower, down to 10 per 1,000, while the general efficiency of the troops has increased. It is not easy to estimate the money equivalent of this, but if we take the rough standard which values each soldier at £100, a simple calculation will show how great is the gain, and who can estimate the value of lives saved and suffering avoided? As to native soldiers with whom the European troops may be compared, I find that the death-rate was in 1886, 13·27 per 1,000; 1887, 11·68 per 1,000; 1888, 12·84 per 1,000. Famine, cholera, and other epidemic visitations in some years disturb the regularity of the death-rate; under less favorable conditions of living, as in the case of prisoners in the jails, it is somewhat higher. In the Indian jails, for example, it was, in 1886, 31·85 per 1,000; 1887, 34·15 per 1,000; 1888, 35·57 per 1,000.

On the whole, all this indicates improvement,* and as regards the civil population, progress also is being made; but here, from so many disturbing causes, the figures are neither so easily obtained nor so reliable. The comparatively large mortality is due to neglect of the common sanitary laws added to extremes of climate, which favor the incidence and diffusion of epidemic disease, and intensify it when it has once appeared. A Sanitary Department has existed in India since 1866, and every effort is made by Government, at no small cost, to give effect to sanitary laws; there can be little doubt that the results so far are good, that disease generally is diminishing, and that life is of longer duration. An important result of the observations of the able medical officers of the Sanitary Service of India has been to show that cholera is to be prevented or diminished by sanitary proceedings alone, and that all coercive measures of quarantine or forcible isolation are futile and hurtful. Here I may say that, large as may appear the death-rate from cholera in India (*i. e.*, in 1888, 1·99 per 1,000 for the European army and 1·35 for the civil population), it is small compared with that of fevers, which caused, in 1889, 4·48 per 1,000 in the European army and 17·09 in the civil population; but there is every reason to believe that these also are becoming less fatal under the influence of sanitary measures. In preventive as in curative medicine, knowledge of causation is essential. It is obvious that any rational system of proceeding must have this for its basis. A certain empirical knowledge may be useful as a guide, but no real advance can be expected without the exactitude which results from careful scientific observation and induction; the spirit of experimental research, however, is now dominant, and progress is inevitable. How much we owe to it is already well known, while under its guidance the reproach of uncertainty which attaches to medicine as a science is disappearing. Recent advances in physiology, chemistry, histology, and pharmacology have done much to throw light on the nature and causes of, and also on the means of preventing or of dealing with, disease. It is impossible to exaggerate the value of the scientific researches which have led to the antiseptic methods of preventing the morbific action of micro-organic life, whether the toxic effects produced by them, or those induced autogenetically in the individual. Theory has here been closely followed by its practical application in prevention and treatment of disease, while the study of bacteriology, which is of such remarkable pre-eminence at the present time, is opening out sources from which may flow results of incalculable importance in their bearing on life and health. That the conclusions arrived at are always to be depended on I doubt, and it seems that scientific zeal may perhaps sometimes outrun discretion. That it might be wiser to postpone generalization has, I think, been more than once apparent, while the expediency of further investigation before arriving at conclusions which may subsequently prove to be erroneous should not be lost sight of; but it has probably ever been so in the course of scientific progress, that in the enthusiasm of research, which is rewarded by such brilliant results, early generalization has too often been followed by disappointment, and it may be by temporary discouragement of hopes which seemed so promising.

It would be well to bear in mind a caution recently given by the Duke of Argyll, "that we should be awake to the retarding effect of a superstitious dependence on the authority of great men, and to the constant liability of even the greatest observers to found fallacious generalizations on a few selected facts." * Still, it is in the region of scientific research by experiment that we look for real progress, and we can only deplore the mistaken sentiment, the false estimate, and the misconstruction of its aspirations and purposes, which have placed an embargo on experiment on living animals, rendering the pursuit of knowledge in this direction well-nigh impossible, if not criminal; while for any other purpose, whether of food, clothing, ornament, or sport, a thousandfold the pain may be inflicted without question. The inconsistency of the sentiment which finds unwarrantable suffering in an operation performed on a rabbit, when the object is to preserve human or animal life or prevent suffering, but which raises no objection to the same animal being slowly tortured to death in a trap, or hunted or worried by a dog, needs no comment; while the spirit which withholds from the man of science what it readily concedes to the hunter is, to say the least, as much to be regretted as it is to be deprecated.

It must be remembered that, important as are the researches into microbiology, there are other factors to reckon with before we can hope to gain a knowledge of the ultimate causation of disease. It is not by any one path, however closely or carefully it may be followed, that we shall arrive at a full comprehension of all that is concerned in its ætiology and prevention, for there are many conditions, dynamical and material, around and within us which have to be considered in their mutual relations and bearings before we can hope to do so; still, I believe we may feel satisfied that the causes of disease are now being more thoroughly sought out than they ever have been—all honor to those who are prosecuting the research so vigorously—and that though individual predilection may seem sometimes to dwell too exclusively on specific objects, yet the tendency is to investigate everything that bears upon the subject, and to emphasize all that is implied in the aphorism, *Salus populi suprema lex.*

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* "It is to be noticed with regret that during the last five years there has been a tendency to revert to a higher death-rate and percentage of sickness. Let us hope this will prove only transitory; the attention of sanitary authorities both at home and in India is anxiously directed toward the removal of whatever may be the cause of it. It is shown both by the vital statistics and the history of the chief diseases that there is in India an enormous amount of preventable sickness and death," but "that the local insanitary conditions or local disease causes are well known and widespread."—A. S. C.'s Reports for 1889.

* *Nineteenth Century*, April, 1891.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for August 28th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.....	Aug. 22	1,515,301	773	89	..	..	..	..	..	16	10	22	5	9
Chicago, Ill..........	Aug. 22.	1,099,850	537	37	..	..	..	..	..	41	6	23	3	1
Philadelphia, Pa.....	Aug. 15.	1,046,964	532	42	..	..	..	..	..	10	3	11	..	4
St. Louis, Mo........	Aug. 22.	451,770	....	14	..	..	..	..	..	8	..	2	..	....
Boston, Mass........	Aug. 22.	448,477	226	28	..	..	..	..	..	3	..	3	..	2
Baltimore, Md.......	Aug. 23.	434,439	193	19	..	..	..	..	..	1	1	4	..	3
San Francisco, Cal...	Aug. 15.	298,997	....	11	..	..	..	..	..	5	..	3	2	....
Cincinnati, Ohio.....	Aug. 21.	296,908	98	7	..	..	..	..	..	4	2	4	..	....
Cleveland, Ohio.....	Aug. 8.	261,:53	134	....	..	..	..	..	..	7	1	2	..	2
Cleveland, Ohio.....	Aug. 18.	261,353	147	....	..	..	..	..	..	2	..	3	..	1
Cleveland, Ohio.....	Aug. 25.	261,353	118	....	..	..	..	..	..	5	4	1	..	1
Pittsburgh, Pa......	Aug. 18.	238,617	157	....	..	..	..	..	..	8	..	7	2	6
Washington, D. C....	Aug. 15.	230,392	138	17	..	..	..	..	..	4	..	2	..	2
Milwaukee, Wis......	Aug. 22.	204,468	94	6	..	..	..	..	..	3	..	5	..	1
Minneapolis, Minn...	Aug. 15.	164,738	54	....	..	..	..	..	..	1	1	..	..	....
Minneapolis, Minn...	Aug. 22.	164,738	50	....	..	..	..	..	..	1	2	..	..	....
Rochester, N. Y......	Aug. 22.	133,896	62	6	..	..	..	..	..	..	..	..	..	....
Kansas City, Mo.....	Aug. 8.	132,716	31	4	..	..	..	..	..	3	..	..	..	....
Kansas City, Mo.....	Aug. 15.	132,716	38	3	..	..	..	..	..	6	..	..	..	....
Providençe, R. I.....	Aug. 22.	132,146	52	4	..	..	..	..	..	2	..	1	..	4
Indianapolis, Ind....	Aug. 22.	105,436	33	4	..	..	..	..	..	1	..	3	..	....
Toledo, Ohio.........	Aug. 21.	81,434	26	....	..	..	..	..	..	..	..	1	..	....
Richmond, Va.......	Aug. 22.	81,388	36	2	..	..	..	..	..	1	..	2	..	1
Lynn, Mass..........	Aug. 22.	55,727	23	1	..	..	..	..	..	..	..	1	..	....
Charleston, S. C......	Aug. 15.	54,955	35	4	..	..	..	..	..	2	..	..	..	....
Erie, Pa.............	Aug. 21.	40,634	14	....	..	..	..	..	..	..	1	..	..	....
Portland, Me.........	Aug. 22.	36.425	7	....	..	..	..	..	..	..	..	..	..	....
Binghamton, N. Y...	Aug. 22.	35,005	13	1	..	..	..	..	..	1	..	..	..	....
Yonkers, N. Y.......	Aug. 15.	32,033	17	1	..	..	..	..	..	..	..	1	..	....
Yonkers, N. Y.......	Aug. 21.	32,033	10	2	..	..	..	..	..	..	1	..	..	....
Mobile, Ala...... ...	Aug. 22.	31,076	10	1	..	..	..	..	..	..	..	..	..	....
Galveston, Texas....	Aug. 7.	29,084	10	2	..	..	..	..	..	..	1	..	..	....
Auburn, N. Y.......	Aug. 22.	25,858	9	2	..	..	..	..	..	..	..	..	..	....
Rock Island, Ill......	Aug. 16.	13,634	4	....	..	..	..	..	..	..	..	1	..	....
Pensacola, Fla.......	Aug. 15.	11,750	4	....	..	..	..	..	..	2	..	..	..	....

Bacteria in Water.—In the Bacteriology Section of the International Congress of Hygiene and Demography, Dr. McWeeney, curator of the Bacteriological Laboratory of the Mater Misericordiæ Hospital, Dublin, read a paper on The Bacteriological Examination of Drinking Water, with Special Reference to the Dublin supply. This method—one of the latest developments of hygienic science—consists essentially in counting the living germs which are always present in our drinking water, obtaining each separate species by itself, and studying their properties. Sometimes it is possible to trace infectious diseases, usually typhoid or enteric fever, to the use of contaminated drinking water, and in these cases the actually living organisms or germs of the disease have been found in samples of water from the suspected source. This does not often occur, however, and the value of the bacteriological examination of water from the hygienic standpoint consists in the fact that the number and character of the germs present in a sample afford reliable indication of the water for drinking purposes. When more than a certain number are present, and when they belong to a species well recognized as putrefactive, the probability of contamination with decomposing organic matter and the possibility of contamination with disease germs should always be borne in mind. In this respect the bacteriological gives a better idea than the chemical examination of the character of the water. The importance of having the water supply of every great city bacteriologically analyzed from time to time was dwelt upon, and special stress was laid upon the advisability of having it done by the same operator, who thus becomes familiar with the innocuous germs commonly present, and can readily detect the exceptional occurrence of a disease-producing organism.

In the Roundwood reservoir the Vartry water contains before filtration some 5,000 germs per cubic centimetre. After filtration through those filter beds which have been cleansed this number is reduced to about 50; but those filter beds which have not been recently cleansed not only do not diminish the number of germs, but absolutely increase it—in one instance to 12,000 in the cubic centimetre. Similar results obtained by Continental observers were quoted. The filtration, however, produces one remarkable result. It consistently reduces the quantity of germ-supporting organic matter—the material upon which the bacteria thrive. In unfiltered water the various forms of bacterial life exist a much shorter time and in smaller numbers than in that which has been filtered—even though the immediate result of the filtration has been to augment the number of bacteria present. Postponing for the present any details with regard to the Stillorgan reservoir, an account was given of the character of the water as it comes from the domestic taps in Dublin. The number of germs here is notably fewer than in the reservoir water—averaging from 20 to 50 in the cubic centimetre, or from 1 to 3 per drop. Turning to the water supply of the Rathmines township, it was found to contain about 200 germs in the cubic centimetre, or 10 in each drop. Though not nearly as good as the Vartry, the Rathmines supply was within the limit assigned by Plagge and Proskauer to the number of germs allowed in the cubic centimetre of good drinking water—300 in the cubic centimetre. The writer had isolated out of the Vartry and Rathmines water about 25 different species of bacteria, pure cultures of which he showed. None were capable of producing disease so far as was at present known. The speaker concluded by promising to continue this line of research, in order that in case any disease-producing organism were to make its appearance it might be at once detected and the source from which it came traced out.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and n new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, September 12, 1891.

Lectures and Addresses.

TAMPONS.

A CLINICAL LECTURE DELIVERED AT THE NEW YORK POST-GRADUATE SCHOOL AND HOSPITAL.

By GEORGE E. ABBOTT, M. D.

Gentlemen: While the doctor is applying a tamponade to this case let us consider the subject of tampons.

We can save time and remember more if we work systematically. Allow me, therefore, to refer you to this chart, by which you will see the subject considered under six sections:

1. *Purposes: a*, Medicinal; *b*, Mechanical. 2. *Materials:* Cotton, Wool, Gauze. 3. *Various Forms.* 4. *Application.* 5. *Retention.* 6. *Removal.*

1. *Purposes: a*, Medicinal; *b*, Mechanical.

a. Among the medicinal purposes of the tampons are the relief of pain, counterirritation, absorption of inflammatory products, contraction of relaxed tissues, and styptics for hæmorrhage.

In all the foregoing the hot vaginal and rectal douches play an important auxiliary part to the tamponade.

All these conditions are very often much more promptly met by surgical procedures—*e. g.*, Pain: reduce the malposition. Inflammatory products: laparotomy to break up adhesions, cleansing and removal of inflamed tubes and ovaries, shortening the ligaments, and anterior and posterior colporrhaphy. Styptics: curetting the endometrium, or ligating the feeding artery.

Nevertheless, the medicinal aid is very important, both as to the preparatory and in the after-treatment of all surgical operations, *and must be attended to.* Surgeons who neglect it are blameworthy just as much as an oculist would be who should dismiss a case of strabismus as soon as the ocular wound had healed, failing to care for the after-treatment and complete the cure to which the surgical operation was but a preparatory step.

b. The main mechanical purposes of the tampon are: Separating inflamed surfaces, as in elytritis; the support of various parts, as in prolapsus, retroversion, cystocele, or for the control of hæmorrhage, wherein the tamponade must work in three ways: first, to compress the afferent arteries supplying the bleeding parts, also to compress the os uteri, if it is a uterine hæmorrhage; secondly, to mechanically entangle the fibrin and form a clot; and thus, thirdly, to form a dam to the outflowing blood—for it is still blood and still water only that congeal.

We will postpone this matter for a time and pass to the consideration of

2. *The Materials used:* Cotton, Wool, Gauze.

The essential characteristics of good tampon material are a fine elastic fiber, which will not pierce or irritate the mucous membrane, and an elasticity which will be retained even though wet. It must also be absorbent or not, according to the purpose for which it is used. A great many materials have been tried, but only three are practically used—cotton (absorbent and non-absorbent), wool, and gauze. "Wood wool," so called, should be called "wood cotton," for it has the qualities of cotton and not of wool. There are also various combinations of cotton and wool which fill a good purpose; those that are carded together are better than those that are simply placed layer upon layer. Of all of these I do not know of any preparation better than this one of Johnson & Johnson's (Fig. 16), who give us a compressed oval cylinder of fine elastic wool, covered with a thin layer of absorbent cotton. This fulfills a large percentage of the needs of the gynæcologist—namely, a thin, absorbent surface of fine cotton, which receives promptly all medicinal preparations, with a foundation of elastic wool, retaining its elasticity even when wet, readily shaped into any form, and easily cut into lengths for ordinary use. (It is, of course, worthless as a tampon against hæmorrhage, for which nothing is reliable but the old-fashioned clean cotton batting, made up into fish-ball tampons, which I will soon describe.) And yet for separating the inflamed surfaces in an acute elytritis, for the usual buttressing of the glycerin pad, for the gradual pressure for the absorbing of inflammatory products, for the support of the uterus, ovaries, and bladder, it is certainly the most convenient form for the surgeon, and the most comfortable for the patient of any that I am acquainted with.

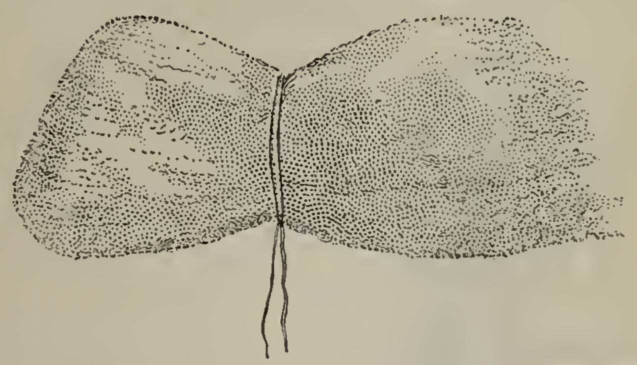
"Is it not very expensive?"

It does cost somewhat more, yet not much more, than good wool; but when one considers the convenience and rapidity of making the tampon and the increased comfort of the patient, he should not grudge a few cents from his fee.

Allow me to discontinue the further consideration of materials until our *résumé*, and take up the next section.

3. *The Various Forms used.*

You will see by the chart and these specimens that various forms are represented. Some are very serviceable, others are fanciful and theoretical; at the same time they give an idea of what should be carried out with the practical tamponade.



Folded edges—right. Fig. 1. Loose fibers—wrong.

Fig. 1, the old woman's hospital "butterfly," made by carefully folding in the edges of the pad, is the best form of the cotton tampon.

Fig. 2, the torpedo form, is liked by many good men. But if after twenty-four hours you will examine the vagina *per rectum*, it will often be found to contain little hard nodules of compressed cotton, just as the constipated rectum feels through the vagina, and for which we constantly find fault with our patients because of its interference with the circulation. I advise against them.

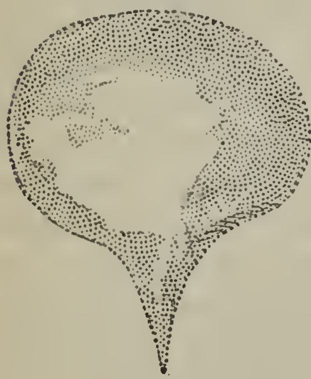


Fig. 2.

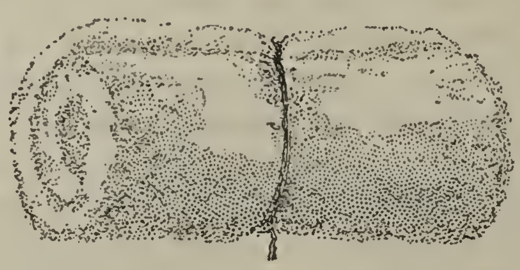


Fig. 3.

Fig. 3 is a shape made by rolling the cotton into a hard cylinder, like three inches of a small broom-handle. Personally I can not place these with comfort to my patients, except to place one in the vagina for elytritis, which is altogether too heavy. It does not compare with the cotton-covered wool of Johnson & Johnson, which is light and elastic.

The bird's-nest or ring shape is used to lift the ulcerated cervix from contact with the posterior wall.

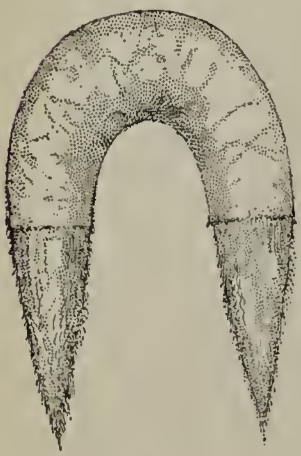


Fig. 4.

Fig. 4, the crescent shape, is very similar in purpose to a Thomas's Albert Smith retroversion bulb pessary.

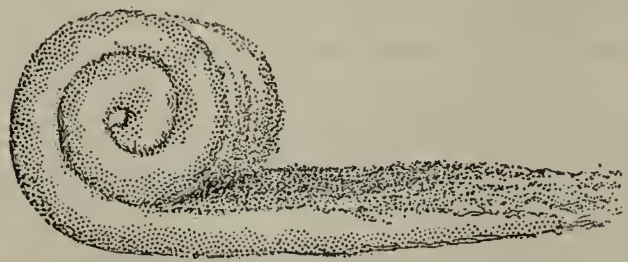


Fig. 5.

Fig. 5, the toboggan shape, is hardly practicable, but serves to show what one desires to accomplish by carefully packing the individual tampons in constructing his tamponade as in Fig. 6.

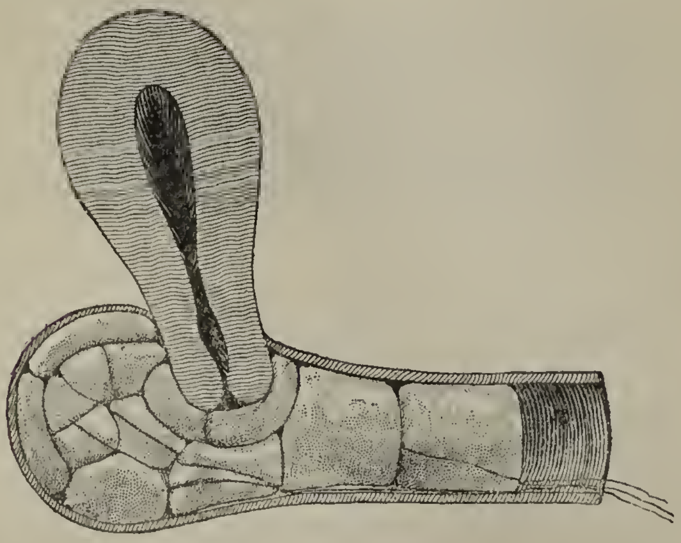


Fig. 6.

Fig. 7, the tape form, is usually made of medicated gauze or wick. This is very serviceable, readily applied, and easily removed.

Fig. 8, the fish-ball tampon, for hæmorrhage, is made in the shape of a codfish ball, of clean cotton batting, non-absorbent; edges turned in and thoroughly wet in plain antiseptic or astringent solution and pressed dry between the palms, taking cotton enough (about 4 × 4 × 1 inches) to make a tampon, when thoroughly wet and pressed hard, 2 × 2 × ½ inches. Eight or ten of these, placed rapidly and firmly in the vagina with an assistant's hand upon the fundus, followed by an abdominal bandage, will control almost any hæmorrhage.

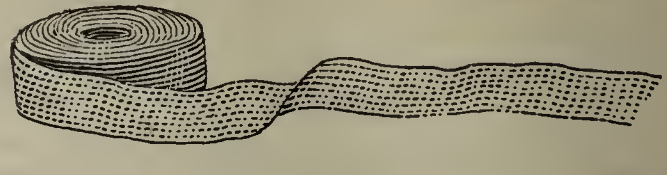


Fig. 7.

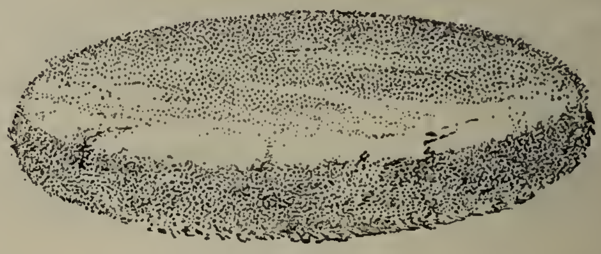


Fig. 8.

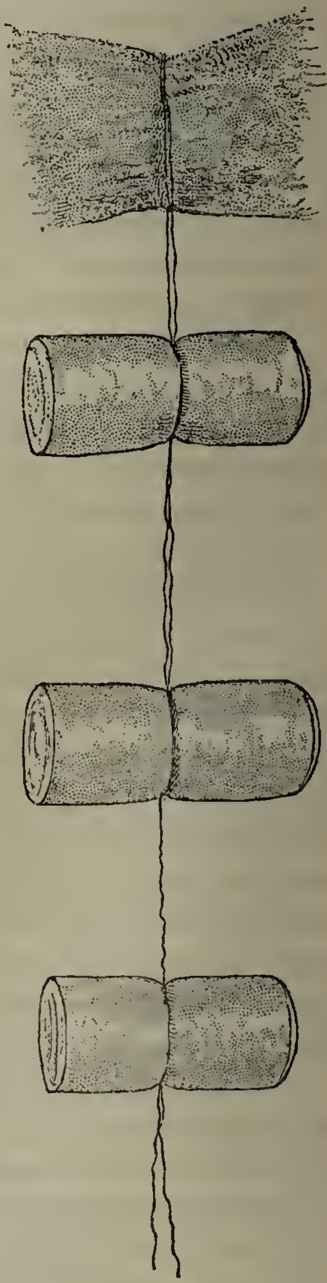


Fig. 9

Fig. 9, the kite-tail, recommended by Dr. Chadwick, of Boston, is made by tying several tampons together. Its only purpose is to be sure that the patient removes all the tampons.

All tampons which the patient is to remove should have attached to them a strong linen or cotton thread, but not thick, heavy string or tape, for, when several tapes are used and covered with glycerin and vaginal discharges, they cause a slimy, worm-like feeling, exceedingly disagreeable to the patient. The thread does not do so. I always use Barbour's three-cord machine-thread No. 25.

To facilitate attaching these threads to the tampons, I have adopted the following plan: Take a piece of wood, nine inches long, an inch wide, and an eighth of an inch thick. Hollow out its ends and wind the thread upon it as one would in winding up a fish-line. Then put an elastic on either end, or, better yet, make a paper sheath as shown in Fig. 10; now cut all the threads at one end of the stick, pull one out from its fellows, and you have it evenly doubled up, ready to throw around the tampon; on passing the two ends through the bight of the thread and pulling it taut, it is completed. This stick and its sheath also make a very good splint to the instruments in your bag, preventing them from being bent and injured.

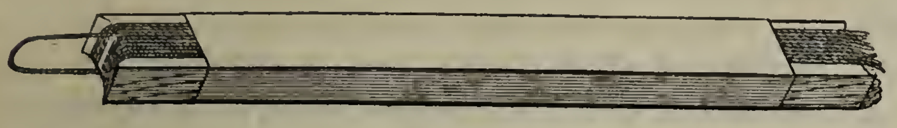


Fig. 10.

4. *Application.*—Under this head let us first consider the technique of applying the tampons. I am sure you will like the straignt better than the scissor-handled forceps. In catching the tampon with the forceps, do not allow the ends of the forceps to project beyond the tampon, as in Fig. 11, and thus give your patient pain as you place it, but have the points well guarded by the end of the tampon, as in Fig. 12. Then, after you have placed it, do not leave it in a ball or a hard bunch, but lay it smooth and flat with the opened forceps, as in Fig. 13. In order to do this more readily, the tampon must be smooth and flat before you apply it. Therefore, in pressing the tampons, do not take them from the surface of the water and press them with one hand, as in Fig. 14, and rumple it into a shapeless mass, but first select the number and size of those you wish to use, then knead them under the medicated solution, driving out all the air, and thoroughly saturate them in every part. Now take them in both hands and press them flat between the palms, as in Fig. 15, and thus retain their shape. Place them in a saucer, and, when everything is in readiness, pack them carefully according to the purpose you have in mind—just as a dentist would fill a tooth—always remembering that in the knee-chest posture the vagina is ballooned to its utmost and that too many tampons may easily be introduced, which will often give too much pressure, causing a good deal of pain when the patient again assumes the usual posture of standing or sitting.

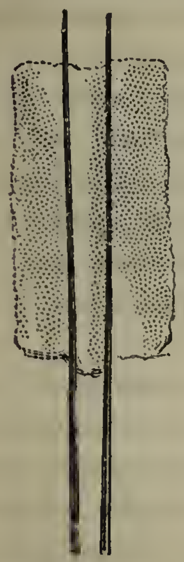


Fig. 11.

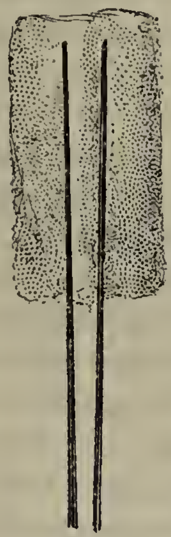


Fig. 12.

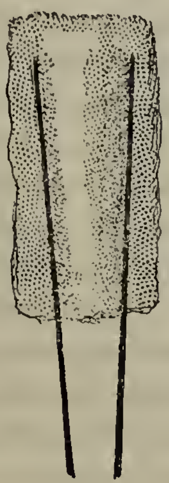


Fig. 13.

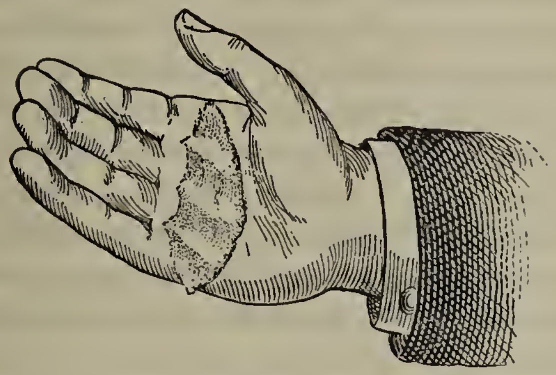


Fig. 14.

For medication, whether for the application of dry powders or glycerin and other liquids, the first tampons should be of absorbent cotton, and not too thick. After this place the other tampons, of cotton or of wool, as in Fig. 6. Those of wool are the best for general purposes. Those of cotton batting do almost as good service at first, but after twenty-four hours they lose their elasticity and fail to support the parts. They must therefore be saturated and compressed before being introduced. This makes a very heavy tamponade, and is not so serviceable as the wool.

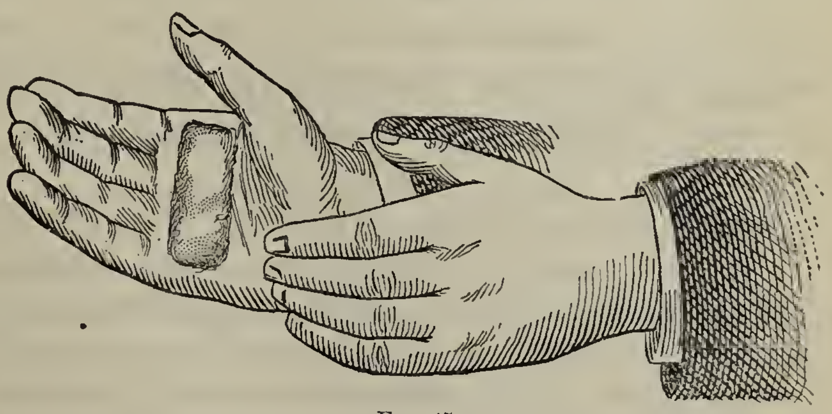


Fig. 15.

There is one practical point that I have recently discovered in trying to saturate the cotton tampons. It is very difficult to wet them thoroughly in carbolic or bichloride solutions, but in a solution of creolin (a teaspoonful to the pint) the cotton saturates immediately, just as though it were absorbent cotton, and after this it may be soaked readily in the bichloride or carbolic solution.

5. *Retention.*—Tampons that are thoroughly saturated and made antiseptic may be allowed to remain one, two, or even three days; but the patient will gain most rapidly when applications are made daily or every other day.

6. *Removal.*—In removing the tampon, the speculum should first be introduced between the tamponade and the posterior wall of the vagina, and then the tamponade carefully withdrawn, one piece at a time, making pressure against

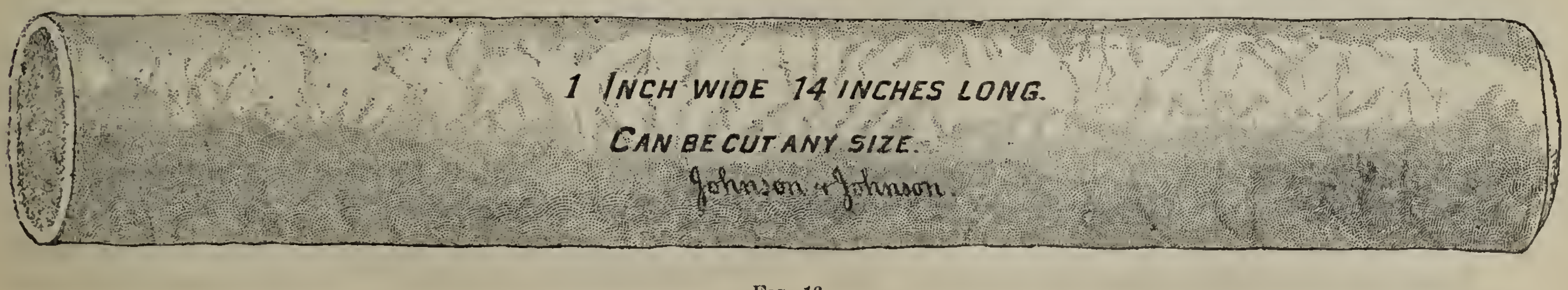

1 INCH WIDE 14 INCHES LONG.
CAN BE CUT ANY SIZE.
Johnson & Johnson.

Fig. 16.

the speculum and avoiding pressure on the anterior wall. Cleanse the parts, and, being sure that they are in position, reapply the tampon. When the patient removes the tampon herself, she should be instructed not to pull forward and upward, as many do, giving themselves much pain, but to pull downward and well backward, if necessary retracting the perinæum with the finger, taking those threads which yield most readily; after which she should take a hot vaginal douche and rest for half an hour or an hour, if possible.

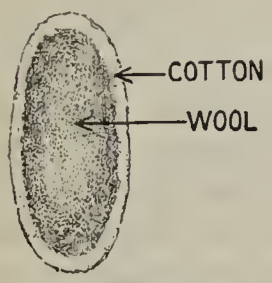


Fig. 17.—End view of tampon.

Original Communications.

OBSERVATIONS ON THE TREATMENT OF URETHRAL STRICTURE,

AND A MODIFICATION OF OTIS'S URETHROTOME.*

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It is not a matter of surprise that a disease so common and one entailing in many cases so much suffering as urethral stricture should have received such frequent attention from surgeons. While considerable progress is being made in its management, the necessity for constant watchfulness, and in many patients for a continued resort to the sound, is a much-to-be-regretted acknowledgment of our inability to accomplish in all cases a permanent cure. Much was promised for electrolysis, but, while its exponents have alleged so much, it has not met with such general acceptance as to give convincing evidence of its superiority over the operations of dilatation and urethrotomy, these still remaining the methods most in favor with the profession at large. But, while surgeons are quite generally agreed as to the value of these two latter modes of treatment, there is considerable difference of opinion as to what constitute the proper indications for each. One depends almost entirely upon the sound; another goes to the opposite extreme and cuts everything that he considers an infringement upon what should be, in his opinion, the normal caliber of the urethra. Between these two extremes lies ample room for the exercise of the surgeon's judgment in adopting that method best suited to the case in hand.

It is not my intention to take up your time this evening with a tedious array of statistics or of prolonged histories, but to make in brief some general remarks based upon a study of those cases that have come under my care during the last few years.

In one hundred and ninety-one cases of stricture of which I have records, more or less complete, internal urethrotomy was performed in fifty-four, external perineal urethrotomy in eighteen, and divulsion in nine. Eleven were complicated with fistula, thirteen with perineal abscess, and six with extensive urinary infiltration. The majority of the patients not operated upon were treated by interrupted dilatation, a few close and tortuous strictures by continuous dilatation until an instrument could be more readily passed. In three cases electrolysis was tried and abandoned. The number of urethrotomies does not represent the entire number in which this operation was deemed the best treatment, for some refused to submit to any measures other than dilatation, and some could not spare the time required for rest after such an operation. No stricture situated beyond the bulb was operated upon by internal urethrotomy. In no case did dangerous hæmorrhage occur. In none of the above-mentioned cases was there a fatal result; and in only four, and these were complicated with urinary extravasation and abscess, were there serious symptoms or a prolonged convalescence. In two of my earlier cases of internal urethrotomy troublesome and persistent curvature occurred, and in one patient this remained for several months. During the last year, since I have confined my incisions closely to the strictures, and avoided, as far as possible, encroaching upon healthy tissue, no case of marked curvature has followed the operation.

It is denied that such curvature is the result of deep incisions, but in my own experience it has never occurred unless the incisions were both extensive and deep. If, as we believe, this sequel is due to the invasion by inflammatory lymph of the areolar tissue of the corpus spongiosum, and in some cases of its investing fascia, such plastic exudation occurring more readily in healthy than in stricture tissue, then the liability to curvature is greater in proportion to the amount of healthy tissue that is opened up by the incision. It is stated by Otis and others that these cases always end eventually in recovery. I have, however, met with one patient who still has a well-marked curvature the result of an internal urethrotomy performed six years ago by a very reputable surgeon. The mental, and in some cases the physical, suffering of a patient afflicted with a curvature, even if it is, as a rule, only temporary, should make it incumbent upon the surgeon to avoid such a result as far as possible. This, I believe, can best be done by controlling all purulent discharge before the operation, by the observance of strict antisepsis before, during, and after the operation, and by the avoidance of unnecessarily extensive incisions.

Under the head of antisepsis comes the administration of drugs intended to render the urine aseptic. I have tried naphthalin, boric acid, and salol. Which is the most effective I am unable to say, but salol has answered well when given in ten and fifteen grain doses three times a day, beginning three or four days prior to the operation and continuing for a week or ten days thereafter. Where cystitis is present and a catheter can be passed, irrigation of the bladder with boric acid or boro-salicylic solution for some days before as well as after the operation is advisable. Cases are, however, occasionally met with where the passage of even a small, soft catheter gives so much pain and causes so much irritation in an already highly irritable urethra, that catheterism, even after the operation and for the evacuation of the bladder alone, is better dispensed with, such patients being less apt to have fever from contact of urine with the incision than from the use of instruments.

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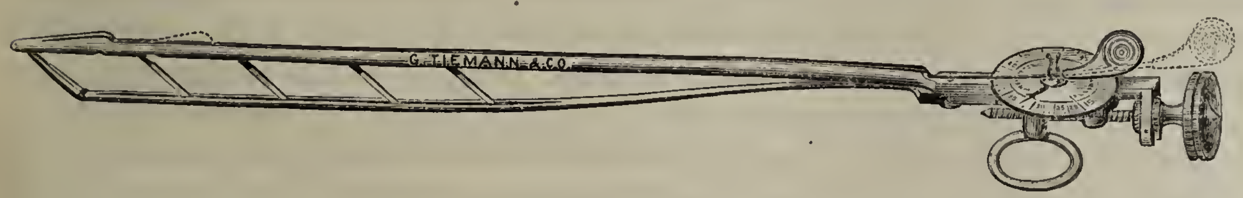
* Read before the Brooklyn Surgical Society, March 5, 1891.

In order to avoid too free incisions, it has seemed desirable to have an instrument that would enable us to locate exactly the posterior face of a stricture just before its division. This led me, two years ago, to examine the different urethrotomes that had from time to time been presented to the profession. Those designed to be used as urethrometer and urethrotome combined either were too large for general use, did not answer well as dilating instruments, or did not enable the operator to confine his incision so closely to the stricture as was desirable. I could find no instrument that would enable me to locate the posterior face of the stricture, put it evenly and sufficiently upon the stretch, and confine the incision to the stricture itself, unless it was of so large a caliber as to prevent its use in some of those cases most requiring operation.*

Otis's instrument still seemed to be the most satisfactory for dilating urethrotomy. It was faulty, however, in that we were obliged to depend entirely upon previous measurement for the localization of the stricture. This entails the liability of cutting either too much or too little, for the distance of a stricture from the meatus is subject to the same variations as the length of the urethra, and this, from fear on the part of the patient, cocaine anæsthesia, etc., may vary considerably during the successive steps of an operation. All surgeons must, I believe, have experienced more or less difficulty in locating the posterior face of a stricture by this method and beginning their incision exactly at that point, when their object has been to cut the contracted band and nothing else. Otis meets this difficulty of localization, in cases of multiple strictures, by cutting the urethra between them when they are less than an inch apart. This is not the best surgery. An incision through healthy membrane, or even through that slightly thickened or otherwise superficially altered, when no actual interference with the normal dilatability of the urethra exists at that point, is an evil, for it greatly increases the danger of troublesome hæmorrhage, of urinary fever, and of subsequent curvature of the penis.



To meet the above-mentioned indications that were not already met by the Otis urethrotome, I had Messrs. Tiemann & Co. modify this instrument as follows: To the upper bar, near its distal end, is affixed a shoulder a millimetre and a half in height. This is, at its base, of the same width as the bar to which it is attached, and tapers toward its extremity so that it represents in a measure a longitudinal section of a *bougie à boule*. I have called this a shoulder because it is in no sense a bulb, and it is not intended to take the place of the *bougie à boule*; its office is simply to locate the posterior face of the stricture at the time of operation. This shoulder increases the diameter of the instrument so little, and the increase from the distal end is so gradual, that it can usually, probably always, be passed through any stricture that will admit the original urethrotome. The knife is so adjusted that its full cutting capacity is attained as soon as it emerges from the shoulder of the instrument.

In using this modified urethrotome it is best to first attack the most anterior stricture. Introduce it until the shoulder is well beyond this point, and dilate until the previously ascertained caliber of the stricture is reached; further dilatation at this stage of the operation causes the instrument to be so grasped by the stricture as to interfere with its primary object of locating the posterior border of the contracted area. Now gently withdraw the urethrotome until increased resistance indicates that its shoulder is just behind the stricture. Put the band to be cut upon the stretch, whether it be to the full caliber of the urethra or only to that degree which seems warranted. Now withdraw the blade until diminished resistance indicates that the stricture is divided. The blade is then concealed and the instrument diminished in size and pushed half an inch farther within the urethra. It is again expanded a millimetre or more beyond the point at which the previous incision was made. Any fibers of the stricture still remaining uncut are detected during its withdrawal, put upon the stretch, and divided. Other strictures are dealt with in the same way. A full-sized bulb should finally be passed to make certain that no bands of large caliber remain undivided. The use of this instrument in the same manner as Otis directs in the case of his own will be attended with disappointment; but an experience of over a year has demonstrated that, when used in the above-described way, it possesses sufficient advantages to warrant its presentation to the profession.

The difficulty in keeping this instrument aseptic and free from rusty joints, which has been urged against its use, is easily met. A forcible stream of water and a soft brush will readily free it from blood, if it has not been allowed to dry. Boiling renders it aseptic just as surely as it does any less complicated instrument. When dry, if it is rewarmed and dipped in vaseline, all the joints are thoroughly lubricated and will not rust.

When it is best to pass a sound for the first time after internal urethrotomy is still an unsettled question. Where marked hæmorrhage has not occurred, where there has been no chill or fever, and where there is no evidence of an increasing urethritis, my preference is to pass a full-sized sound just beyond the incision on the day following the operation, and continue thereafter every other day for the first week, and then at somewhat longer intervals, according to circumstances. When, however, any of these complications have occurred, a delay of two or more days seems best.

The number of these cases in which recontraction has occurred after urethrotomy I am unable to give. Some were hospital patients, who are generally soon lost sight of, and others, for various reasons, are not accessible for re-examination. In those whom I have been able to keep under observation for a number of months, recontraction, to a greater or less extent, has taken place in a majority of strictures of the deep urethra, necessitating an occasional resort to the sound; but the reverse has been the rule in those situated anterior to the bulb. The tendency to recontraction, presuming the stricture to have been thoroughly divided, seems to depend not only upon the character and extent of the stricture, but upon the degree of inflammation following the operation, the habits and diathesis of the patient, and the consequent character of his urine. I believe that some degree of recontraction always takes place in those cases of so-called inodular strictures, wherever situated, no matter how thoroughly division has been effected. The greater the suppuration in a urethrotomy wound, the more extensive the resulting scar tissue and the greater the tendency to recontraction. Aseptic surgery has done much to improve the results of these operations. That dilatation will permanently cure some soft strictures in those of temperate habits who escape subsequent attacks of urethritis I am convinced; that dilating urethrotomy, be it ever so thoroughly done, will fail to permanently cure many I am equally certain, not only from a re-examination of some of my own cases, but from an examination of a number of patients who have been operated upon by men who are justly considered authorities in urethral surgery. I have at present a patient under observation who, over six years ago, was operated upon by dilating urethrotomy for an annular stricture of the pendulous urethra. It recontracted, and was cut again freely. Again it recontracted, and again the same surgeon, a man of prominence and one thorough in all his operative work, did another urethrotomy. Last summer this patient was for the fourth time subjected to the same operation by a second surgeon, and cut so that a No. 40 F. bulb could be easily passed. His normal caliber is 38 F., and 31 is the largest *bougie à boule* that will pass the stricture at present. This patient has had no urethral inflammation, except such as followed the operations, since a year prior to the first urethrotomy.

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* The excellent modification of Otis's by Dr. G. Waekerhagen had not then been introduced.

In patients operated upon by divulsion, well-marked urinary fever occurred when the operation was done without preparatory treatment, and when, as so often happens in cases so urgent as to admit of no delay, an irritable or inflamed bladder made it impossible to catheterize with sufficient frequency to keep the urethra from contact with urine during the first few days. In those who received appropriate preparatory treatment and who could tolerate catheterism at five or six hours' intervals, a solution of boric or boro-salicylic acid being used at each instrumentation, fever was either absent or moderate and of short duration.

This operation has become unpopular of late years, and I think justly so. Certain it is that the cases are few in which it is to be preferred to urethrotomy or interrupted dilatation. Except in strictures at or beyond the bulb it has no proper place in urethral surgery, and even here, when the stricture does not yield to treatment by dilatation, and the patient will not submit to external perineal urethrotomy, a shallow incision through the partially dilated stricture, limited to the stricture itself, and subsequent overdistention by the dilating urethrotome, as suggested by Wyeth, is a more exact and safer operation than divulsion. Where a stricture is too extensive and too resilient for this latter procedure, divulsion also will probably fail. When the stricture is overdistended after such an incision, the tearing, if any, will be most apt to take place along the line of this incision, and will leave a smoother and more limited wound exposed to the urine than is left after divulsion; and the formation of cicatricial tissue, with its subsequent contraction, will be less than after the more uncertain and irregular tearing produced by the latter operation. Not a few post-mortem examinations have shown that normal as well as stricture tissue may be torn by the divulsor even in careful hands. Compared with external perineal urethrotomy, this operation is less exact, and promises less as to permanency of cure. While in linear strictures divulsion may be the safer operation, in those which are more extensive I believe the evidence is in favor of external urethrotomy. I occasionally find a divulsor useful in deep strictures, so tortuous or so complicated with false passages that even a guide is passed with difficulty, the patient not being willing to submit to external urethrotomy—not for divulsion, however, but for dilatation. In such cases it is often easier and more effective, and produces less irritation, to pass it over the guide and dilate to a point short of rupture, than to pass a number of tunneled sounds in succession.

Of the eighteen cases of external perineal urethrotomy, one only was done without a guide, and that was in a case of stricture associated with recent rupture of the urethra. With cocaine or ether anæsthesia, oil injections, a plentiful supply of properly assorted filiform guides, and patience, cases that will not admit a guide sooner or later must be comparatively rare. The retention of a full-sized catheter for three or four days after this operation, as is now generally advocated, not only prevents urinary fever, as a rule, but is a means of hastening the closure of the perineal wound. In my own cases I have found that where the knees were kept together during the first few days, a tampon not being required to control hæmorrhage, primary union of all the wound, except that portion occupied by the catheter, generally occurred, at least of so much of it as could be examined; and closure of the remainder quickly followed the withdrawal of the instrument. While early union of all the wound, except that of the divided stricture and so much of the external wound as is required for drainage, is highly desirable, a too rapid complete closure may be objectionable and a source of danger. In two of these cases a bladder exceedingly irritable, even while the patient was taking suppositories of morphine and belladonna, necessitated the withdrawal of the catheter in thirty and forty-eight hours respectively. In both some urine was passed through the urethra on the third day, and on the fourth day none whatever came through the perineal opening. Although in each of these patients an extensive incision was made—in one, involving an inch of the bulbous and all the membranous urethra—there was no elevation of temperature until some hours after urine ceased to pass through the perineal wound. Then marked fever occurred, in one case preceded by a chill. Separation of the edges of the wound so as to again allow of perineal drainage, and a few irrigations with a boro-salicylic solution, brought the temperature down to normal by the following day, where it remained. These cases are instructive and serve well to demonstrate the value of perineal drainage in operations upon the deep urethra.

STRYCHNINE NITRATE

IN TOXIC AMBLYOPIA FROM ALCOHOL AND TOBACCO.

WITH REPORT OF CASES.

By G. MELVILLE BLACK, M. D.,
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LATE HOUSE SURGEON TO THE MANHATTAN EYE AND EAR HOSPITAL, NEW YORK.

I DESIRE to place upon record a few cases of tobacco and alcoholic amblyopia cured by hypodermic injections of nitrate of strychnine, obtained from the records of the Manhattan Eye and Ear Hospital, New York city, Dr. David Webster's clinic, and referred by him to my morning clinic for treatment, as will be described. As there is "nothing new under the sun," we make no pretension of anything new or original.

Nitrate of strychnine was used, not because the therapeutic effects of this preparation were any different from those of other salts of strychnine, but because it has proved less irritating for subcutaneous injection. The sulphate I have found very irritating, producing abscesses, in spite of the most rigid care, when used in large doses. The nitrate, on the contrary, I have never had the misfortune to produce an abscess with, but have seen them produced by others. I, however, attribute the fact to carelessness about the syringe and improper administration. I have not found that it makes any difference whether the needle is plunged deeply into the tissues or superficially, if the needle and syringe are clean, if the site of puncture is clean, and if the solution is made with distilled water; and, lastly, which I deem very important, if the part is thoroughly massaged afterward for from three to five minutes. I usually choose for my site of puncture the arm, preferably over the biceps muscle, changing from one arm to the other. I have never found it necessary to change to any other location on account of irritation. The temple has not proved a favorable site with me; owing to the large doses used, the part would become sore.

The solution used was made from Merck's nitrate of strychnine, eight grains to the ounce of distilled water. This is about as strong a solution as can be kept made up, and in cold weather the strychnine will crystallize and fall to the bottom, requiring it to be warmed before using. I use this strong solution because I have not found it any more irritating than a weaker one, and because it often becomes necessary to run up as high as twenty to twenty-five minims to get the desired result.

Physiological effect is the limit and the point to be reached as soon as possible without danger to the patient. I have never had any ill effects from adding one minim to each daily injection, and continuing this until the physiological limit is reached, which will be obtained under twenty minims, as a rule. I have given, however, twenty-eight minims (seven fifteenths of a grain) before obtaining it. When the physiological limit is reached it is best to drop back a few minims, say three to five, and go up again, aiming to get physiological effects about every six to eight days. After reaching ten minims it is not best to have the patient leave the office for half an hour, as he may fall in the street on his way home. The sensations usually complained of when the physiological limit is reached are lassitude followed by slight vertigo, and inco-ordination, also weakness of the lower extremities, sometimes so great that the patient can not walk. And when the effect is very marked, slight tetanus ensues for a few moments only. These sensations come on, as a rule, about half an hour after the injection, and last from half an hour to an hour and a half, according to their severity. The patient must be prohibited absolutely from using alcohol or tobacco. A fact that I have noticed is that, if the vision is tested before an injection and then about half an hour after, it will be found to have increased considerably. This is a favorable prognostic sign. Such a patient will almost always improve under treatment.

CASE I.—S. P., aged sixty, blacksmith. Sight always good until two weeks ago. Has been gradually failing since. Seems as though looking through a dense fog. When he is looking directly at an object, a "ball of fog seems to obscure it," and causes him to turn his head so as to "see around it," which, of course, does not have the desired result.

He has been a beer-drinker for seven or eight years, and takes whisky now and then; gets "tight occasionally." He has been a heavy smoker for twenty-five years, generally using a pipe, and it has seldom been out of his mouth.

Present Condition.—R. V. = $\frac{20}{200}$, L. V. = $\frac{20}{100}$, not improved by glasses.

With a correction of his presbyopia (+ 4 D. both), he makes out No. 13 Jäger with difficulty.

There is a very marked central scotoma for colors, especially red, but he distinguishes them readily at the periphery of the field. The field for white is not limited.

Ophthalmoscopic Examination.—Arteries very small, veins of about normal size, disc dirty-looking.

Treatment.—On January 31, 1891, I began with 3 minims of an 8 gr. solution of nitrate of strychnine hypodermically, after getting him to promise not to touch tobacco or alcohol any more, and increased by one minim each day. On February 7th I gave him ten minims (one sixth of a grain), and tested the vision in half an hour; found R. V. = $\frac{20}{70}$, L. V. = $\frac{20}{40}$. Continuing on in the same manner, on the 16th he took eighteen minims (three tenths of a grain), with the vision the same as when last tested. As he seemed to have a special tolerance for the drug, I found it necessary to run up to twenty-seven minims (nine twentieths of a grain) before getting physiological effects; this dose was given February 25th. Vision on the 26th was $\frac{20}{40}$ both. Dropping back to twenty minims, I worked up to twenty-six minims before observing physiological effects again; this was on March 7th, vision being R. V. = $\frac{20}{70}$, L. V. = $\frac{20}{40}$. I again went back to twenty minims and worked up to twenty-eight minims (seven fifteenths of a grain) before observing physiological effects. On March 14th R. V. = $\frac{20}{50}$. L. V. = $\frac{20}{50}$. I kept him upon a dose varying between twenty and twenty-six minims until March 28th, physiological effects occurring twice during that period, once on twenty-four and once on twenty-six minims. R. V. = $\frac{20}{40}$, L. V. = $\frac{20}{30}$, and ability to read Jäger No. 1

at 10″ with presbyopia corrected (+ 3·50 D.). He was dismissed from treatment. I have seen him several times since. He retains the same amount of vision and reads his newspaper as formerly. Color perception perfect.

Case II.—T. M., aged forty-two, an iceman by occupation. He noticed about a year ago that vision was failing; that he had difficulty in reading and seeing at a distance, which grew worse very gradually. The fog before the vision is diffuse and not limited to a central ball. He has been an inveterate smoker of a pipe for thirty-three years, and has been in the habit of taking a drink of whisky before and after each meal for eighteen years.

Present Condition.—R. V. = $\frac{7}{200}$, L. V. = $\frac{2}{200}$, not improved by glasses. There is a marked central scotoma for colors, and he gets some shades of red wrong even in the periphery. Visual fields somewhat contracted above and below.

Ophthalmoscopic Examination.—Triangular atrophy of each nerve at the temporal side.

Treatment.—Beginning with three minims on November 28, 1890, I reached twelve minims on December 7th, with vision $\frac{14}{200}$, both. Reached nineteen minims on December 15th, with vision $\frac{20}{200}$, both, and there were physiological effects at this dose. From this date to December 27th he was kept at a dose varying from fifteen to eighteen minims, having physiological effects three times during this period, each time at eighteen minims. At this point he missed three days and had to drop back to ten minims.

January 1, 1891.—R. V. = $\frac{20}{200}$, L. V. = $\frac{20}{200}$. From this date to January 16th I kept him at a daily dose varying from fifteen to twenty minims; he had physiological effects four times; V. = $\frac{20}{50}$, both. Color perception normal. Reads Jäger No. 2 with ease with + 1 D., the correction of his presbyopia. He has been seen a number of times, and is retaining $\frac{20}{50}$ vision.

Case III.—H. S., aged sixty, housewife. Has been wearing glasses for sixteen years. Vision has been failing for a long time; she does not know how long. For the past six months she has been able to read but little; is much worse at times than at others. Has been drinking a bottle of ale or beer every night for thirty years. Has never used tobacco in any form.

Condition.—R. V. = $\frac{20}{200}$: $\frac{20}{50}$ w. + 1·50 D.; L. V. = $\frac{20}{200}$: $\frac{20}{50}$ w. + 1·50 D.; upon adding + 4 D. to this for the correction of presbyopia she could not read more than No. 11 Jäger. Color perception normal and visual fields unlimited.

Ophthalmoscopic Examination.—Both discs of a dirty color with a crescentic strip of atrophy below. Vessels of about normal size.

Treatment.—Commenced with two minims, and increased in the usual manner, observing physiological effects at fifteen minims on August 15, 1890. Vision on the 16th $\frac{20}{40}$, both, w. + 1·50 D. She was kept under treatment until October 15, 1890, the dose ranging from ten to eighteen minims. She had physiological effects nine times during that period, at a dose of from fifteen to eighteen minims. She was dismissed with V. = $\frac{20}{30}$, both, with + 1.50 D.. and reading J. No. 1 w. + 5 D.

Case IV.—J. P., aged thirty-two, clerk, September 4, 1890. Vision commenced failing last June. Had been in the habit of smoking ten cigars a day and taking about six drinks of whisky a day. Got very drunk about three weeks ago, and was not sober for three days; when he became straight again he found he could not read the newspaper, and a dense "fog" in a few days obscured distant objects; this "fog" was less dense at the periphery of the visual field.

Present Condition.—R. V. = $\frac{10}{200}$, L. V. = $\frac{20}{200}$, not improved by glasses. Marked central scotoma for red, blue, and green. Visual fields for white normal.

Ophthalmoscopic Examination.—Disc dirty and indistinct in outline, especially so at the nasal side. Blood-vessels of about normal in size.

Treatment.—He had physiological effects at ten minims and was kept on the border-land of physiological effects for ten days. On September 20th found R. V. = $\frac{20}{200}$, L. V. = $\frac{20}{70}$. On October 4th, R. V. = $\frac{20}{70}$, L. V. = $\frac{20}{40}$. On October 20th, R. V. = $\frac{20}{50}$, L. V. = $\frac{20}{30}$. On November 5th, R. V. = $\frac{20}{20}$, L. V. = $\frac{20}{20}$. On November 20th, R. V. = $\frac{20}{20}$, L. V. = $\frac{20}{20}$. It was never possible to give him more than ten minims without producing physiological effects, which I aimed to do about every six to eight days. He was discharged from treatment November 20th. V. = $\frac{20}{20}$. Color perception normal, and reading Jäger 1 with perfect ease. We have kept him under observation ever since, and the last time I saw him his vision was still perfect.

In closing, I desire to thank Dr. Webster for the privilege of reporting the above-given cases.

INSOLATION:

IMMEDIATE TREATMENT NECESSARY.

By R. ELLIS, M. D.,

DANBURY, CONN.

We are told in standard text-books that the prognosis in severe insolation is very bad. We are led to believe that a case of sunstroke with a temperature above 108° is usually fatal, and, therefore, when we lose the patient in such a case we simply murmur "I thought so," and complacently sign the death certificate. I believe the prognosis as given in some of our text-books needs to be entirely changed.

I make bold to say that the prognosis in almost every case is good if the high temperature can be treated immediately. The prognosis is always bad if the patient is first carried a distance to the hospital. Persistent, faithful, and careful treatment on the spot is absolutely necessary.

I well remember that, when an ambulance surgeon, I saved an Italian's life by bringing with me in the ambulance a large piece of ice; had I waited for ice to be brought by the by-standers, as was my custom, I should have lost my patient, for there was no ice within a mile, and the poor fellow's temperature was 108·6°, with vomiting and profuse fæcal discharges. Had I delayed treatment until reaching the hospital the morning papers would have read: "Died before reaching the hospital"; but the temperature in this case, after treatment for forty-five minutes on the spot and then all the way to the hospital, registered there 101°. Since then the ambulance always carries ice, a pail, and a sprinkler. In such cases as this, if at any distance from the hospital, the patient must be saved by the ambulance surgeon, else the internes will have a hopeless case to work with.

I have seen eleven severe cases of insolation, with two deaths from sheer neglect. In the first fatal case an ice-bag to the head was ordered when the patient was in the epileptoid stage, and he died before morning, as any one can imagine. If a patient lives to reach the convulsive stage he will almost surely recover if continuous treatment is kept up; but if in the convulsive stage, with the temperature lowered from 109° to 102°, all treatment is discontinued save with an ice-bag to the head, he may die from renewed high temperature when it is believed that all danger from this source has disappeared.

In the second fatal case an ambulance from a neighboring hospital brought us a patient completely dressed in a heavy dark suit; his temperature was 110°, and his appearance moribund, yet he lived for five hours after his entrance into the hospital. It is my belief that he would have recovered had he been stripped immediately and showered with ice-water. When the majority of those stricken recover, if early treatment is given, it is certainly distressing to read of patient after patient dying in the ambulance when immediate treatment would save so many. To my mind it is as senseless to postpone treating insolation until reaching the hospital as it would be to neglect a case of incised femoral artery; the first needs ice-water immediately on the naked body just as much as the second needs immediate control of hæmorrhage by compression. It is not my purpose to mention the full treatment of insolation; I simply make a plea for the immediate use of ice-water, continued with intermittent rubbing as long as the rectal temperature remains high; I make a plea for all hospitals to equip their ambulances with ice, a pail, and a sprinkler, and to instruct their ambulance surgeons to treat every patient on the spot as long as may be advisable, and to continue the treatment in the ambulance until the patient reaches the hospital.

FRACTURE OF THE FIBULA IN A CHILD CAUSED BY MUSCULAR CONTRACTION.

By WARREN B. CHAPIN, A. M., M. D.

Fractures due to muscular contraction rarely occur except at the patella or some of the bony prominences. The long bones of the arm are sometimes fractured by the falling short of an intended blow, but I can find no record of the fibula ever having been broken by muscular contraction. The following case I believe to be unique:

> A woman brought her little boy, aged six years, to my office, for the purpose of having a splinter removed from his leg. She said that she found him sitting on the table playing with his toys, and sharply commanded him to get down. The child, frightened, turned quickly, gave a cry of pain, and complained of his leg hurting him. He was unable to walk, and the mother discovered what she supposed to be a splinter in the outer side of his leg.
>
> What at first appeared to be a large splinter beneath the skin proved, on closer examination, to be the upper part of a fractured fibula.
>
> The point of fracture was about two inches and a half below the head of the bone; the upper fragment had been pulled forward and outward, the sharp end lying just beneath the skin on the outer side of the leg.
>
> The fragment was freely movable, but, after each attempt to bring the fractured ends into apposition, the upper fragment would fly back, and the end assume its former position beneath the skin.

As the boy sat on the table with his knee flexed or semiflexed, the biceps would have a strong outward action on the fibula, and the fracture must have been caused by the violent contraction of that muscle as the boy suddenly turned himself, the upper fragment being pulled forward and outward by the continued contraction of the muscle. This would seem almost inconceivable, as the peronæus longus and soleus muscles would antagonize this action; but the mother is intelligent, and firmly insists that there was no external violence.

114 West 104th Street.

EXTRA-UTERINE PREGNANCY.

CURETTING OF THE UTERUS FOLLOWED BY MISCARRIAGE.

By E. R. AXTELL, M. D.,

DENVER, COL.

Mrs. E. R. P., aged twenty-six, well developed and well nourished, came to me some months ago with the history of having had a stoppage of the menstrual flow, and that, becoming anxious, she had resolved to bring it on by gentle irrigation of the womb's interior. This she accomplished by means of a syringe introduced into the uterus, a procedure easily accomplished because of the fact that the womb lay very low in the pelvis. The patient stated that she introduced a good quantity of water and kept it up until a severe pain came on, when she desisted. The pain did not last long, and entirely disappeared after a few clots came away. In these clots she thought she detected some organized matter, and she felt safe. It was far from her desire to bear children, and she had done this because she thought herself pregnant. The symptoms following the irrigation of the womb were varied. Soon she had much pain in the left iliac region and blood now began to appear in good quantity. For ten days or more she allowed this to run on, and I was then consulted.

At this time I got from her a very imperfect history. She told me of the washing out of the womb and the subsequent expulsion of blood-clots with organized material and of the pain which she had had. As regards her previous history I could ascertain but little at that time. I have since learned, however, the following facts: She began menstruating at thirteen years of age and had always been regular, at a period of twenty-five days. She was married at eighteen and in a year had her first child, a well-developed boy. The baby was born at full term, and Mrs. P. had no trouble during pregnancy or at delivery. The latter was especially free from pain. The second child, a girl, was born eighteen months later, and she had no trouble with this pregnancy or with the delivery. Three years and a half later she became pregnant again, and miscarried at the third month. During this pregnancy she had a profuse and constant flow of blood, which did not cease until the child was expelled. A year ago she again became pregnant, and, just as before, flowed constantly. She stated that she lost blood both day and night, and that if it stopped for an hour it would be greater during the succeeding one. She stated that during this pregnancy she lost many quarts of blood. All of this time she was being treated for "ulceration of the womb," and many local applications of various kinds were made. At the fifth month and about the fifteenth day labor pains came on, and in a short time a gush of water showed that the membranes had ruptured. This was on Thursday. The pains then subsided and did not return until Saturday, when a child was expelled. This child cried and lived for an hour and a half—a feature of interest. The patient strenuously denies that she did anything to cause the expulsion of the child in either of these two pregnancies.

The last pregnancy is as recorded. This was of about six weeks' duration when I first saw her. At least that was what the patient thought from the absence of the menstrual flow, but, as will be seen, it must have been further advanced. I examined the womb carefully, and found it low in the pelvis and somewhat enlarged and heavy. I prescribed fluid extract of ergot and advised hot douches and rest. The flow diminished now, and for a few days she had only a show. Then it began again. On two occasions she passed good quantities of clear, blood-tinted water. I ascribed this to collections of douche water, but was not at all satisfied with the explanation. The discharge of blood continued, and in three weeks after the irrigation of the womb it was quite profuse, and a full dozen napkins would be saturated daily. The patient became depressed and extremely anæmic, and the pulse became weak and compressible, 120 beats to the minute. I determined on action. All the drugs given her had produced no result. I had suspected pregnancy, and until this time had not passed a sound. Thinking that some small organized points on the endometrium were the source of the hæmorrhage, I at last introduced a probe. It passed readily into the uterus without meeting any obstruction, and, on measurement, I found the organ had a depth of four inches. I thought its size was dependent upon subinvolution, and I felt sure the hæmorrhage was due to uterine fungosities. I tried making a conjoined examination through the vagina and abdominal wall, but, owing to the thickness of the abdominal wall, due to contained fat, the examination revealed nothing.

The next day and the following one I introduced the probe and passed it to the fundus and moved it in all directions, that I might be sure of an empty cavity. No obstruction was offered in any direction, and I prepared for the scraping which I had determined on and which the patient readily agreed to. On the 6th of January last, at 10 A. M., I thoroughly scraped the mucous surface of the uterine cavity. The curette I used was a large one, measuring three eighths of an inch across and half an inch in length. The cervix was very patulous, and no difficulty was experienced in getting the instrument into the uterine cavity. The curetting was done as is suggested by Dr. Thomas—the anterior face of the uterine cavity being first scraped, then the posterior surface, and lastly each horn. At a number of places small pieces of the mucous membrane were removed, and in the right cornu an obstruction of some extent was met with and a great number of small pieces were removed by the curette. I did not feel that I had removed them all, but, after scraping a great number off, I stopped, believing that I had removed enough. A slight quantity of blood escaped during the operation, but no more than was expected. The patient was then put to bed, with the assurance that things were expected to go right. During the day she rested well and had but little hæmorrhage. At 6 P. M. a distressing bearing-down pain came on, and I was summoned in haste. I did not reach the place, however, until an hour later. When I arrived, what was my astonishment to see in a *pot de chambre* a well-developed child six inches long! The woman had recovered from her pains and was feeling better. She stated that the pains had come on rather suddenly and increased in force at an astonishingly rapid pace, and in an hour she had given birth to the child. The patient stated that the pains were much more severe than at her previous normal deliveries and that she was compelled to cry out in her distress. I found her still bleeding profusely, and the womb relaxed and flabby. Carefully cleansing my hand, I at once introduced it into the uterus and removed a large placenta which lay directly in the uterine cavity. With its removal the uterus contracted down, and to my compressed hand the fundus felt normal. From this time the patient rapidly recovered, was soon able to be up and about, and is now in the best of health.

Subsequent examinations have not revealed any abnormity in the shape and contour of her uterus.

In my opinion, the case was one of tubal pregnancy, the seat of the placenta and child being low down in the tube near the uterus, the impregnated ovum having been arrested at this point.

The history of absent menstruation was for only six weeks when I saw her first, yet the child was fully a four months' child. The menstrual flow thus continued for several months after the pregnancy had been established.

The hæmorrhage can be accounted for by the excessive congestion of the entire uterus dependent upon the pregnancy, and possibly by a misplacement of a portion of the placenta, due to the uterine irrigation. Then again this procedure might have opened a uterine sinus, and this might have caused all the subsequent trouble. Why she should have had a similar array of symptoms with her two preceding pregnancies I do not know. I rather suspect, however, that the syringe was used at those times.

As regards the resort to the curette in this case, I feel that I was justified in no other course. Every indication for the use of prompt measures was present and I did only what prudence would dictate. In this case the pregnancy was not detected. No tumor-like mass was felt in the pelvis, either by the patient or by myself. This no doubt was because of the thick abdominal wall, because of the small size of the mass, and because of the heavy and enlarged uterus. Possibly the use of the stethoscope would have given me the sound of the fœtal heart, but the fact that the body of the uterus was so little enlarged and that the uterine cavity was empty induced me to forego this examination.

The termination of the case was the best that could have occurred. It was a true extra-uterine pregnancy, and, had it been discovered, laparotomy or faradism would have been indicated, as in these cases rupture of the tube and subsequent internal hæmorrhage are to be feared, provided the child is allowed to grow.

Iodide of Potassium in Diphtheria.—"In the *Vratch*, Dr. Semen N. Zenenko, of Nijni-Novgorod, speaks highly of the treatment of diphtheria by iodide of potassium. In adults the drug should be given from five to eight grains every two, three, or four hours, up to a half to one drachm a day (according to the patient's constitution, the severity of the disease, etc.). In children from one to fourteen years of age single doses should range from a half to three grains. The administration should be continued until the appearance of iodism and an incipient separation of false membranes, which usually occurs on the second, third, or fourth day of the treatment. The author tried the method in twenty-eight consecutive cases of undoubted diphtheria, in every one of which the patient made a good recovery. Of nineteen other cases treated at the same place by the ordinary methods, sixteen (84 per cent.) died. As adjuvant means, Dr. Zenenko employed hourly gargling with a 2 or 3 per cent. boric or salicylic acid lotion with glycerin and tincture of geranium or camphorated spirit; further, inunctions of gray mercurial ointment (from ℈j to ʒj twice a day) were used for enlarged cervical and submaxillary glands, while stimulants, quinine, etc., were freely given."—*British and Colonial Druggist.*

TWO CASES OF MEMBRANOUS RHINITIS.

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The nature and ætiology of this affection have been freely written upon during the past two years, and space need not be occupied here in a review of its literature. Bosworth's latest treatise and the last two editions of Sajous's Annual will furnish all necessary data to any one wishing to survey the field. Cases of this kind, however, are still sufficiently uncommon to deserve clinical record as from time to time they occur. Hence it has not seemed out of place to give the following facts. Both cases occurred at the Roosevelt Out-patient Department in the service of Dr. Jonathan Wright, attending laryngologist:

Case I.—Florence B., aged five, American parentage, admitted July 8, 1891. Had pertussis sixteen months ago, followed by aural discharge. The latter was made much worse by an attack of measles ten months ago, but has since ceased of its own accord. Two weeks after the measles, nasal discharge set in and has continued in varying amounts up to the present time. In January, 1891, had a severe attack of the "grippe," and ever since the left side of the nose has been more or less stopped up. One week ago "something white" was noticed in the left nostril. The stoppage of the latter became complete, causing mouth-breathing and snoring at night. Blowing the nose has caused bleeding and the discharge of "chunks of flesh" from the affected side.

Examination showed the left inferior turbinated bone, and to a less extent the opposite septum covered, with a rather thick, uneven membrane, which crumbled when removed by the forceps and left a bleeding surface. The swelling of the parts made it impossible to see just how far back the deposit extended, but it seemed to project backward from the sites mentioned. The sides and, to a less extent, the back of the naso-pharynx presented a similar coating but rather more tenacious than in the nose. The temperature was 99·2° F., pulse a little rapid but strong. Urine 1·022, acid, clear, no albumin, quantity normal. She had no appetite and seemed a little drooping, but apart therefrom there were no constitutional symptoms whatsoever.

The membrane was removed from the nose. An iron tonic was ordered, together with a warm boric-acid wash for syringing the nostrils. On the second day after, the membrane had reappeared on the turbinated bone, but the temperature was normal and the child quite bright. The throat presented the same appearance as before. On the fourth day the nose was clean. The deposit in the naso-pharynx was thinner and here and there beginning to separate. An application of pure tincture of iron chloride was made to the latter. On the twelfth from the first visit the patient was discharged from further attendance, cured.

During her illness an adult in the same family who was subject to coryza had quite a severe attack of the latter, with epistaxis, but a careful examination of the upper air-passages failed to reveal any membrane, and the question of a possible contagion was dismissed. Microscopical examination of a bit of the membrane stained in the usual way showed only the ordinary fibrinous structure entangling a few epithelial and pus cells, with here and there scanty rod-shaped and spherical bacteria.

Case II.—Nellie M., aged four, Irish parentage, admitted July 17th. She had measles in January, 1891, apparently without sequelæ. Soon after, however, her mother noticed that she was talking through her nose and was getting a little thin. Recently nasal obstruction began to increase and nose commenced to discharge. Has played with another child who has a "sore nose," but the latter clew can not be followed up at all. Has not had any constitutional symptoms whatever.

Examination showed enlarged tonsils, with slight eczema narium and a muco-purulent discharge from the right nostril. The entire mucous membrane of the anterior naris was covered with a thick, smooth, tenacious membrane which was removed by the forceps in quite good-sized pieces, leaving a bleeding surface. The vault of the pharynx contained a little adenoid tissue, but there was no membrane. The temperature was normal, urine 1·018, acid, clear, no albumin. The child did not seem in the least degree prostrated.

The removal of the membrane, though easily accomplished, was followed by quite free bleeding. The treatment was as above given. By the next day the membrane had reformed. On the fourth day after syringing there was considerable bleeding, and one or two good-sized membranous patches came away. This proved, however, to be the end of the plastic process. There was no more bleeding, and on the eighth day the patient was discharged cured. Microscopical examination of the membrane gave the same results as in Case I.

I think that a direct application of iron chloride tincture to the membranes at the time of the first visit might have shortened the duration in both cases. It was not possible to learn just how long the exudate had been present before they came under observation. The disease in children is frequently prolonged over several weeks.

A question always coming up in such cases is the one in regard to diagnosis. Objectively they may be either simple exudative inflammation with the degeneration or death of tissue, or they may be diphtheria. Still further, they may belong to a disease or group of diseases not yet clinically isolated, but having its or their distinct specific germ. On perhaps no doctrine in pathology have more arguments been made than on the one relating to the nature and causes of pseudo-membranous inflammations. In view of the general admission now given to the claims of the Klebs-Loeffler bacillus, the question can be easily settled in one direction. Unfortunately, just at the time these cases presented themselves, it was not possible for us to follow up their bacteriology. It is in this direction especially that cases of membranous rhinitis should in the future be studied. It is easily a possibility that there may be a pathogenic germ standing in a causal relation to the affection. Concerning clinical diagnosis a word or two may be allowed. Here again we are met by a great diversity of opinion. Some very recent text-books still tell us that if we gently syringe an affected mucous membrane with a warm saline solution, and, if the deposit comes away easily and does not leave a bleeding surface, we may be sure that the case is not one of diphtheria, and *vice versa*. But recent bacteriological investigations have shown that such a test is no sure test at all. Local mechanical disturbances in the circulation leading to the impairment of the integrity of the superficial epithelium will produce a false membrane which is not in any way short of bacterial cultures to be distinguished from a true diphtheritic exudate. Huebner has shown that a local spasm of the capillaries from cold will produce a similar result. This is the non-conclusive point in calling these cases simple membranous rhinitis. On the other hand, we know that true nasal diphtheria is one of the most severe forms of the disease. In both these cases there were no constitutional symptoms whatever. There were no glandular swellings, no evidences of renal implication, and no after-paralysis. Both patients were visited at their homes at a period subsequent to their last visit at the hospital and the foregoing statements confirmed.

A CASE OF
FOREIGN BODY IN THE AIR-PASSAGES.

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I TAKE the liberty of presenting the following notes for the purpose of bringing together the clinical facts in the case which might be of value, from a diagnostic standpoint, to those of my readers who may be brought in contact with patients suffering from the presence of foreign bodies in the respiratory tract.

Elmer C. R., now aged fourteen, while tacking up a lambrequin, drew one of several large brass-headed tacks which he was holding in the mouth into the trachea and into the left bronchus, as near as could be determined by external location, about an inch below the bifurcation. The patient was first seen by Dr. Dubois, of Unadilla, who found the patient suffering from spasm of the glottis, dyspnœa, cyanosis, incessant coughing, and a frothy, slightly blood-tinged expectoration. This did not continue long, and after a few days the irritation passed away and the patient again returned to normal health, and the accident was soon forgotten. It should be said, however, that Dr. Dubois located the foreign body exactly where I did on seeing the patient one year later. About six months ago this patient first came to my personal notice. At this time the boy appeared robust and healthy, with, however, the presence of a slight irritative cough. On his relating the above history of his case, I began to make a physical examination of the chest. Inspection showed the chest symmetrically developed. Auscultation gave a diminished vesicular murmur over region of middle lobe of the left lung. Bronchial respiration somewhat marked. Percussion gave dullness and pain over an area two inches in diameter and an inch and a half to the left of the median line of the sternum and over the vicinity of the bifurcation of the left bronchus. I gave it as my opinion that the foreign body, whatever it might be, was located in the region outlined above, and the best treatment would be to be conservative and await developments. Aside from the constant dry cough, the patient felt no inconvenience until the morning of August 3d last, when I was called to see the patient suffering from violent attacks of coughing accompanied by quite profuse purulent expectoration. It was during one of these fits of coughing that I was permitted to see the interesting part of this case—viz., the expectoration of the tack that had passed into the bronchus eighteen months before. At this writing the irritation and cough have subsided, and, while the respiratory murmur is not quite clear, yet the patient is on the road to recovery. The tack was inclosed in a hard, dark, grumous substance, and had probably become encysted and, in turn, by a suppurative process, had been liberated and expelled by the act of coughing.

On a careful review of all the facts as they presented themselves in this case, we find that the most marked symptoms were the sudden violent coughing, with spasm of the glottis and dyspnœa, and cyanosis following immediately upon the disappearance of the foreign body. Then, after a short time, the complete cessation of all these symptoms. The first train of symptoms would lead one to locate the object in the respiratory tract, while their complete cessation might indicate that the foreign body had passed into the stomach. It therefore follows that the diagnosis and prognosis should be very guarded until all the evidence obtainable has been brought to bear upon the case. It is well to proceed first by inspection, as by this means, with the aid of the laryngoscope, the physician will be able to see the object should it be lodged in the larynx. Palpation would aid the attendant in locating the object after tracheotomy has been performed. Auscultation will give a diminished vesicular murmur over the obstructed area and a compensatory increase of the normal vesicular murmur in the opposite lung. Percussion will give pain and increased dullness over the obstructed region, especially if inflammatory reaction has taken place. Auscultation and percussion, therefore, become material aids to the attendant in making his diagnosis.

All these signs, however, will be governed by the shape and size of the obstructing body. If, as in the case so ably reported in a recent number of the *New York Medical Journal* by Dr. J. D. Rushmore, the obstructing body is a large cork, we should get a train of symptoms entirely different and much more marked than if the object were a tack, as in the author's case, or a fishbone, shot, or, as in the case reported by Dr. John A. Wyeth, in which a young lad drew an air-gun dart into the larynx.

The treatment will be according to the exigencies of the case. Immediate tracheotomy may be demanded to prevent fatal asphyxia, or, in extreme cases, the patient may require resuscitation by Silvester's method. Should the requirements of the patient be less urgent, we may resort to inversion and the patient violently shaken while in this position and made to cough or sneeze. If the object is heavy and smooth it may be dislodged in this manner. Possibly in certain cases it may be wise to pursue a conservative course and wait, but, as a rule, this is dangerous. If surgical procedures are determined upon, then the earlier the better—if possible, even before any intumescence or necrosis of the tissues at the seat of obstruction has taken place.

67 EAST HURON STREET.

Naphthaline as a Vermifuge.—"According to Dr. Mirovich, of Biélsk, naphthaline is an admirable remedy not only for ascarides, but for tape-worm. He considers it much more certain and far less poisonous than most of the other vermifuges. For grown-up people he prescribes a fifteen-grain powder, to be followed immediately by two ounces of castor oil. For two days before this dose the patient is directed to live on salt, acid, and highly seasoned food; then the naphthaline is given fasting early the following morning. In the case of children naphthaline may be mixed with castor oil, flavored with a drop or two of bergamot. In all the cases in which this plan was carried out, including some in which more ordinary means had failed, the whole tænia was expelled with its head after the first dose."—*British and Colonial Druggist.*

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THE RELATIONS OF THE ABDOMINAL VISCERA IN THE INFANT.

The diseases of infancy are so largely those affecting the abdominal organs that the relations of the various structures in the abdomen are of great importance to the physician as well as to the surgeon. Extensive observations upon this subject are reported by Dr. Ballantyne in an admirably illustrated paper in the July number of the *Edinburgh Medical Journal.* The method of investigation was by means of frozen sections of eight infants.

The liver is the abdominal organ that first attracts attention. Its great size accounts in large measure for most of the peculiarities in the anatomical relations of the abdominal viscera of the infant. In proportion to the general body weight it is as one to eighteen. In its normal position it is less flattened than when placed on a flat surface, and has five distinct surfaces. The stomach is comparatively small and is crowded to the left of the median line by the liver, which partially overlaps it. Though the fundus is smaller than in the adult, there is not sufficient peculiarity in shape to account for the readiness with which an infant vomits. The author believes that this is explained by the fact that the stomach is surrounded on all sides by hard, resisting organs. The relations of the small intestine are not especially peculiar. Its length varies somewhat in different cases, but is usually about nine feet at birth and increases very rapidly during the first two months. The position of the cæcum and ascending colon varies in different cases, and the transverse colon is almost invariably crowded out of its normal position by the liver. The course of the descending colon is similar to that in the adult. The sigmoid flexure is long and the loop lies to the right of the median line. It extends downward into the pelvis behind the bladder. The spleen is in contact upon four sides with the liver, stomach, diaphragm, and suprarenal capsules. The kidneys and pancreas have the same relation to surrounding organs as in the adult. The bladder in infancy is almost entirely an abdominal organ.

EXTRAVAGANT HOSPITAL ADMINISTRATION.

The *Medical Press and Circular* for July 29th refers editorially to the King's College Hospital, London, as an example of "atrocious extravagance" in the conduct of hospital affairs. In the course of a parliamentary investigation the charge was made that this hospital had spent, during the past three years, at the rate of $600 for each bed maintained. The hospital authorities combated this statement by showing that a large sum, about $45,000, had been expended for permanent improvements, but admitted a cost for each bed of $470, of which not more than $84 reached the patient in the bed, the balance, or $386 nearly, being soaked up by secretaries and a multitude of indirect charges. One of the Dublin hospitals, the Cork Street Fever Hospital, long notorious for the monstrous disproportions of its outlay, runs the King's College Hospital a close race for the prize for wastefulness. It reports the gross cost for each bed of $595, of which $440 represents establishment expenditure. On the other hand, the Meath Hospital shows a cost for each bed of not more than $230, of which $95 reached the patient; while in the case of the hospital first named only $84 was consumed by the patient. The administration charges at the Meath amounted only to $135 a bed; in the King's College they were $386 a bed. "And yet," says the editor, "we believe that the patient was in no respect less comfortable or less carefully nursed and fed, or less efficiently treated in the one than in the other hospital where the establishment charges were nearly three times as high." To put the comparison in another form—somewhat resembling that which has for many years been applied to the cost of reaching the heathen through the missionary societies—in the more expensive of these two institutions it cost $78 out of every $100 to transmit $22 to the sick occupant in his bed, while in the other it cost $58 out of each $100 to carry $42 to the sick man. This latter seems much the more equitable provision for the occupants of the beds. Coming to this side of the Atlantic, an example of the high cost that a hospital bed may here attain to has just come under our notice in an appeal for funds during the current summer. In this appeal it is stated that every gift of ten dollars will defray the cost to the hospital of one patient for one week, which would seem to fix the per-diem cost of each bed at $1.24 plus. This does not seem like a high figure for high-grade, modern hospital treatment, but, if it is multiplied by 365 in order to get the yearly cost of a bed, we shall find that it mounts up to considerably above five hundred dollars. How much of this is expended on the patient in the bed we can not state from what appears in the document just quoted, but it is probably a vastly larger proportion than that of either of the two foreign institutions named above as instances of extravagant management.

MINOR PARAGRAPHS.

LUNACY IN IRELAND.

From the *Fortieth Annual Report on the Condition and Care of the Insane* in the various institutions throughout Ireland for 1890, it appears that there were on the 1st of January last 16,251 lunatics under treatment, being an increase of 225 on the number at the commencement of the year 1890. Since 1880 the insane in district asylums have increased from 8,667 to 11,488, and in workhouses from 3,513 to 3,961. There has been an increase in the insane from 249 in 100,000 of the estimated population in 1880 to 346 in 100,000 in 1890. Such an increase of insanity in a population which has considerably decreased of late years may be explained perhaps by admissions to asylums from among the number of lunatics at large already existing in the country; while the rapid decrease of the population by emigration might also tend to show an apparent increase of insanity. For the flow of emigration going on from year to year would, as a rule, tend to remove the healthy and strong both in mind and body, thus leaving the weak and infirm, deprived of support, as a burden on the public rates. The mortality in the district asylums during 1890 was 936, giving a percentage of deaths on the daily average number resident of 8·2. Consumption was by far the most common cause of death, accounting for 255 of the total deaths, or a percentage of 27·2. The inspectors draw attention to the paucity of post-mortem examinations in public asylums, and state that the importance of these investigations can not be too strongly urged, tending as they do to protect the insane, since by them any injuries inflicted during life may be discovered; to guard the asylum staffs from accusations of ill treatment; and to advance our knowledge of brain disease, and to afford the means to the medical officers of asylums for the study of pathology.

IDENTIFICATION BY THE FINGER-TIPS.

In a recent number of the *Nineteenth Century* there is a very interesting paper by Mr. F. Galton, on identification by the surface markings of finger-tips. The method lies in the system of ramifications of the minute ridges that run across the palms of the hands, and more especially in the scrolls or other patterns that the ridges form on the inner surfaces of the bulbs of the fingers. If these marks are peculiar to each individual, their utility would be considerable in criminal investigations and in cases of personation and of mistaken identity. Mr. Galton suggests the following method for finger printing: A box, three inches and a half square by seven and a half long, contains a slip of glass, a small printer's roller, a collapsible tube filled with very fluid printer's ink, and some blank paper. A drop of ink is squeezed out of the tube on to the glass, and is spread very evenly and very thinly over it by the roller. Then the fingers are lightly pressed, first on the inked surface of the glass and afterward on smooth paper.

COFFEE AS A CAUSE OF PRURITUS ANI.

A correspondent thus relates a personal experience: "For many years I suffered from the most aggravated form of pruritus ani, which refused to yield to any one of the many remedies applied for its relief—nothing seemed to have the slightest effect in ameliorating the torture to which the intense itching subjected me. After exhausting the pharmacopœia I began to abstain from certain articles of food; one after another was dropped from my dietary for several weeks, but without effect until coffee was reached. An abstinence for a period of two or three weeks resulted in complete relief from the distressing symptom. As a matter of experiment the use of coffee was resumed for several days with the effect of reproducing the pruritus; the experiment was tried several times with the same result. A year without coffee has been to me a year without pruritus."

FRAUDULENT DIPLOMAS IN WISCONSIN AND DAKOTA.

The *Boston Medical and Surgical Journal* states that a number of bogus medical diplomas have been discovered in the hands of would-be practitioners of the States mentioned. As many as fifty are supposed to be afloat in that section, alleged to have been bought. These parchments purport to be issued from the University of Victoria, Montreal. The Wisconsin State Medical Board has the subject under investigation.

THE LEPROSY BACILLUS.

The *Indian Medical Gazette* for July publishes a short *résumé* of the work of a commission which has been pushing forward its investigations in India for some months. Dr. Beaven Rake and Dr. Buckmaster, members of the Leprosy Commission, have finally succeeded in growing the leprosy bacillus in blister serum. Inoculations of agar and gelatin gave vigorous secondary cultures of the same bacillus, proving beyond a doubt the absolute certainty of this culture. Experiments in animal inoculation are in progress.

A STRANGE VERDICT.

Dr. Thomas McGrath, coroner for East Tyrone, Ireland, died very suddenly and an inquest was held by a coroner from an adjoining district. It is stated that the jury brought in the inconsequential verdict that Dr. McGrath died from "an overdose of a narcotic." What narcotic, or the manner of its fatal administration, or the question of responsibility, are all ignored in this singular deliverance.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 9, 1891:

DISEASES.	Week ending Sept. 1		Week ending Sept. 9	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	0	0	0	0
Typhoid fever	37	8	42	8
Scarlet fever	76	6	43	12
Cerebro-spinal meningitis	6	4	6	3
Measles	67	1	39	5
Diphtheria	64	19	70	20
Small-pox	0	0	0	0
Varicella	0	0	0	0
Whooping-cough	2	0	0	4

The American Neurological Association will hold its seventeenth annual meeting, in connection with the Congress of American Physicians and Surgeons, at the Arlington Hotel, Washington, on Tuesday, Wednesday, and Thursday, the 22d, 23d, and 24th inst., under the presidency of Dr. Wharton Sinkler, of Philadelphia. The programme includes the following titles:

An address by the president; A Case of Acute Spinal Paralysis: Death on the Twelfth Day, with the Account of the Microscopic Examination made by Dr. C. W. Burr, by Dr. Wharton Sinkler, of Philadelphia; Poliomyelitis Acuta Adultorum, by Dr. William C. Kraus, of Buffalo; A Contribution to the Therapeutics of Poliomyelitis, by Dr. V. P. Gibney, of New York; Syphilis of the Spinal Cord, by Dr. Philip Zenner, of Cincinnati; The Virile Reflex in Relation to Clinical and Forensic Neurology, by Dr. C. C. Hughes, of St. Louis; Lead Poisoning, with Special Reference to the Spinal Cord and to Peripheral Nerve Lesions, by Dr. E. D. Fisher, of New York; A Case of Tumor of the Cerebellum in which Trephining was done for the Relief of Pressure, by Dr. Philip Coombs Knapp, of Boston; Gunshot Wound of the Left Cuneus, with Complete Right Homonymous Hemianopsia, by Dr. J. T. Eskridge, of Denver; A Case of Trephining and Excision of the Cortex for Jacksonian Epilepsy, by Dr. W. W. Keen and Dr. Charles K. Mills, of Philadelphia; Five Recent Cases of Brain Surgery, by Dr. William A. Hammond, of Washington; Astasia-abasia, by Dr. Philip Coombs Knapp, of Boston; Tubercular Infection of the Central Nervous System, by Dr. B. Sachs, of New York: A Subcortical Hæmorrhagic Cyst beneath the Arm and Leg Areas, with Remarks on the Diagnosis of Lesions of the Motor Subcortex, by Dr. C. K. Mills, of Philadelphia; The Diagnosis of Certain Forms of Intracranial Syphilis, by Dr. Landon Carter Gray, of New York; A Case of Tumor of the Mesencephalon, with Exhibition of the Brain, and A Case of Tumor of the Brain with Focal Epilepsy, by Dr. James Hendrie Lloyd, of Philadelphia;

The Electro-physiology of Reflexes, with the Description of a hitherto unknown Localized Physiological Reflex Phenomenon, by Dr. G. W. Jacoby, of New York; Triple Personality, by Dr. Irving C. Rosse, of Washington; Porencephalus in which Trephining was done for the Relief of Local Symptoms; Death from Scarlet Fever; Exhibition of the Specimen, by Dr. De Forrest Millard and Dr. James Hendrie Lloyd, of Philadelphia; Double Athetosis, by Dr. W. Osler, of Philadelphia; A Case of Thomsen's Disease, and Removal of a Neuroma followed by Disappearance of Local Anæsthesia of Fourteen Years' Standing, by Dr. G. L. Walton, of Boston; Facial Hemi-hypertrophy, by Dr. William A. Hammond, of Washington; Lithæmia considered in its Relation to Nervous Phenomena, by Dr. C. Eugene Riggs, of St. Paul; Friedrich's Disease: its Relation to Conducting Paths in the Cord, by Dr. David Inglis of Detroit; Fracture of the Eleventh Costal Spine, followed by Injury of the Spinal and Sympathetic Nerve Supply of the Bowel in the Region of the Ileo-cæcal Valve; Intestinal Hæmorrhage and Death on the Seventh Day, by Dr. J. T. Eskridge, of Denver; and A Case of Unilateral Paralysis of the Lips, Tongue, and Pharynx, with the Presentation of Specimens, by Dr. G. M. Hammond, of New York.

The American Association of Andrology and Syphilology will hold its fifth annual meeting at the Shoreham Hotel, Washington, on Tuesday, Wednesday, Thursday, and Friday, the 22d, 23d, 24th, and 25th inst., under the presidency of Dr. Fessenden N. Otis, of New York. The programme includes the following titles: A Review of the Evidence of the transmission of Syphilis to the Third Generation, by Dr. Abner Post, of Boston; Relation of Syphilis to Stricture of the Rectum, by Dr. Robert W. Taylor, of New York; Observations upon the Syphilitic Cachexia, by Dr. J. Blake White, of New York; The Abortive Treatment of Syphilis, by Dr. J. William White, of Philadelphia; On the Occurrence of Nephritis in Syphilis, by Dr. John A. Fordyce, of New York; Exhibition of New Instruments, by Dr. W. K. Otis, of New York; A Case of Excision of Stricture and Urethroplasty for Radical Cure, by Dr. Edward L. Keyes, of New York; A Contribution to the Surgical Treatment of Ruptures of the Bladder, by Dr. Arthur T. Cabot, of Boston; On the Use of Salicylic Acid in the Treatment of Certain Forms of Cystitis, by Dr. John P. Bryson, of St. Louis; Undetected Stone, by Dr. William H. Hingston, of Montreal; Spontaneous Fracture of Stone in the Bladder, by Dr. Francis S. Watson, of Boston; Note upon a Possible Service to be Expected from Diuretin in Genito-urinary Surgery, by Dr. Edward L. Keyes, of New York; Encysted Stone complicated with Growths of the Bladder, by Dr. C. H. Mastin, of Mobile; The Treatment of Vesical Calculus in Male Children, by Dr. J. William White, of Philadelphia; Further Report of a Case of Tubercular Cystitis, by Dr. L. Bolton Bangs, of New York; Hæmaturia, by Dr. W. K. Otis, of New York; Clinical Notes on (*a*) Hypertrophy of the Prostatic Sphincter; (*b*) The Relation of Rectal Distention to Arterial Depression, by Dr. William T. Belfield, of Chicago; Notes on the Surgery of the Prostate, by Dr. William N. Wishard, of Indianapolis; Stricture of the Ureters, by Dr. Francis S. Watson, of Boston; Observations upon the Surgery of the Ureter, by Dr. Arthur T. Cabot, of Boston; Exhibition of Complete Double Ureters of Both Kidneys, by Dr. Edmund E. King, of Toronto; On the Radical Cure of Urethral Stricture by Restoration of the Mucous Membrane to a Healthy Condition, by Dr. John P. Bryson, of St. Louis; An Obscure Case of Chronic Non-specific Urethritis of Sixteen Years' Standing, by Dr. George E. Brewer, of New York; The Treatment of Urethral Stricture and its Resulting Conditions by Excessive Local Distention and without Cutting—including a Brief Report of Fifty Cases, by Dr. James P. Tuttle, of New York; New Methods for the Treatment of Urethral Disease effected by the Use of the Speculum, by Dr. F. Tilden Brown, of New York; The Treatment of Gonorrhœa, by Dr. W. Frank Glenn, of Nashville; The Dry Poultice in the Treatment of Epididymitis, by Dr. George E. Brewer, of New York; and An Exhibition of an Antiseptic Syringe for Hypodermic Medication, by Dr. J. Blake White, of New York.

The American Association of Obstetricians and Gynæcologists.—The programme for the fourth annual meeting, to be held at the New York Academy of Medicine on Thursday, Friday, and Saturday, the 17th, 18th, and 19th inst., includes the following titles: Post-partum Hæmorrhage: its Ætiology and Treatment, by Dr. A. P. Clarke, of Cambridge; Removal of the Kidney for Disease: with Cases, by Dr William J. Asdale, of Pittsburgh; Another Method of Palpation of the Kidney, by Dr. Robert T. Morris, of New York; Intra-uterine Irrigation after Labor, by Dr. Lewis S. McMurtry, of Louisville; Is a Child Viable at Six and a Half Months? by Dr. Llewellyn Eliot, of Washington; Some of the Dangers incident to Delay in operating for Uterine Myomata, by Dr. Isaac S. Stone, of Washington; How should we proceed when Abdominal Tumors are complicated by Pregnancy? by Dr. James F. W. Ross, of Toronto; Thoughts pertaining to Maternal Impressions during Gestation, by Dr. William S. Stewart, of Philadelphia; Removal of the Uterine Appendages, with Results, by Dr. Milo B. Ward, of Topeka; A few Abdominal Sections selected from my own Work, by Dr. William H. Myers, of Fort Wayne; The Prevention of Secondary Peritoneal Adhesions by an Aristol Film, by Dr. Robert T. Morris, of New York; the president's annual address, by Dr. Adam H. Wright, of Toronto; Asepsis in Abdominal and Pelvic Surgery, by Dr. William H. Wathen, of Louisville; A Case of Cholecystotomy and Cholelithotrity; Death from la Grippe on the Twenty-first Day, by Dr. William Wotkyns Seymour, of Troy; Report of Cases of Cholecystotomy with Special Reference to the Treatment of Calculus lodging in the Common Duct, by Dr. A. Vander Veer, of Albany; Femoral and Ventral Hernia in the Female, by Dr. Henry O. Marcy, of Boston; Some Moot Points in Ectopic Gestation, by Dr. X. O. Werder, of Pittsburgh; Ectopic Pregnancy: when shall we operate? by Dr. Rufus B. Hall, of Cincinnati; Trendelenburg's Posture in Gynæcology, with Demonstrations, by Dr. Florian Krug, of New York; The Treatment of Minor Lacerations of the Perinæum, by Dr. George R. Shepherd, of Hartford; Peritonitis, by Dr. Mordecai Price, of Philadelphia; Peritonitis, by Dr. Edwin Ricketts, of Cincinnati; Manual Rectification of Certain Malpositions of the Head in Labor, by Dr. William H. Wenning, of Cincinnati; A Plea for Early Hysterectomy and Puerperal Hysterectomy, by Dr. Joseph Price, of Philadelphia; Observations on the Surgical Management of Pelvic Abscess, by Dr. Charles A. L. Reed, of Cincinnati; and The Essential Question of Drainage in Pelvic Surgery, by Dr. Lewis S. McMurtry, of Louisville.

Hygienic Instruction in Germany.—Dr. Loeffler, of the Greifswald Institute, has accepted the position of professor of hygiene in the University of Marburg, to succeed Dr. Rubner, who has succeeded Koch at Berlin. A new chair of hygiene has been inaugurated at Kiel, and Dr. Bernhard Fischer has been chosen to fill it and to become director of the Hygienic Institute. A new biological institute is promised for Heligoland. The Minister of Public Instruction has urged upon the governors of the provinces the spread of certain circulars of information to the public regarding the care of infants and the prevention of the spread of diphtheria and other infectious diseases.

Medical Visitors from England.—Sir William MacCormac arrived on the White Star steamer Majestic. He comes to us as an invited guest of the Congress of American Physicians and Surgeons. There were also on the same vessel Mr. Reginald Harrison, Sir Charles Cameron, Mr. Howard Marsh, Dr. W. M. Ord, Mr. A. E. Durham, and Dr. F. H. Haynes, nearly all of whom are booked for some part in the discussions of the Congress.

Change of Address.—Dr. A. M. Fernandez de Ybarra, to No. 140 West Tenth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from August 23 to September 5, 1891:*

Havard, Valery, Major and Surgeon, is granted three months' leave of absence, to take effect on or about September 5, 1891.

Polhemus, Adrian S., Captain and Assistant Surgeon, is hereby granted leave of absence for one month, to commence on or about September 3, 1891.

Wyeth, M. C., Captain and Assistant Surgeon. Sick leave of absence extended three months on surgeon's certificate of disability.

Pilcher, James E., Captain and Assistant Surgeon, is relieved from duty at Fort Clark, Texas, on expiration of leave of absence, and is assigned to duty at Fort Ringgold, Texas.

HORTON, SAMUEL M., Major and Surgeon, is relieved from further duty at Fort Adams, R. I., and will proceed to San Diego, Cal., and report to the commanding officer for duty at that post.

MIDDLETON, J. V. D., Major and Surgeon, is granted leave of absence for fifteen days.

KIMBALL, JAMES P., Major and Surgeon, is granted leave of absence for twenty-five days.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending September 5, 1891:*

HESLER, F. A., Passed Assistant Surgeon. Detached from the U. S. Steamer Pensacola and ordered to the U. S. Steamer Charleston.

WELLS, HOWARD, Surgeon. Ordered to temporary duty in the Bureau of Medicine and Surgery.

DICKSON, S. H., Surgeon. Detached from the Practice-ship Constellation and to wait orders.

CURTIS, L. W., Passed Assistant Surgeon. Detached from the Constellation and ordered to the Naval Academy.

RUSH, W. H., Passed Assistant Surgeon. Ordered to the U. S. Steamer Yantic.

BEYER, H. G., Passed Assistant Surgeon. Detached from the Yantic and granted two months' leave.

BOYD, ROBERT, Assistant Surgeon. Detached from the U. S. Steamer Dale and ordered to the Marine Rendezvous, Boston.

Society Meetings for the Coming Week:

MONDAY, *September 14th:* New York Academy of Medicine (Section in Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); German Medical Society of the City of New York; Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private).

TUESDAY, *September 15th:* New York Academy of Medicine (Section in Theory and Practice of Medicine); Ogdensburgh Medical Association; Medical Societies of the Counties of Kings and Westchester, N. Y.; Connecticut River Valley Medical Association (Bellows Falls, Vt.).

WEDNESDAY, *September 16th:* New York Academy of Medicine (Section in Public Health and Hygiene); Harlem Medical Association of the City of New York; Northwestern Medical and Surgical Society of New York (private); Medico-legal Society; Medical Society of the County of Allegany (quarterly), N. Y.; New Jersey Academy of Medicine (Newark).

THURSDAY, *September 17th:* American Association of Obstetricians and Gynæcologists (first day, New York); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, *September 18th:* American Association of Obstetricians and Gynæcologists (second day); New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

SATURDAY, *September 19th:* American Association of Obstetricians and Gynæcologists (third day); Clinical Society of the New York Post-graduate Medical School and Hospital.

Answers to Correspondents:

No. 363.—1. A fine emery wheel. 2. Thiersch's solution.

Letters to the Editor.

IMMUNITY AND CONTAGION.

NEW YORK, *August 13, 1891.*

To the Editor of the New York Medical Journal:

SIR: It was with keen interest and great pleasure that I read Dr. T. W. McLaughlin's essay on Immunity and Contagion, which the author was kind enough to send to me in the form of a reprint from the *Transactions of the Texas State Medical Association*, 1890. When you published my article—Immunity through Dynamic Inhibition—in the *New York Medical Journal* for July 18, 1891, I expected my notion regarding the molecular vibration as existing in the organic molecules of normal tissues and in those pathologically changed through bacterial potency would not meet with favor, as this happens so frequently to new, original ideas. You may therefore imagine my satisfaction at having learned that I was not isolated in the conception of the idea referred to. Dr. McLaughlin's paper, consequently, has given me moral support for the continuation of my work. I need not say more, but assure you that I never before had the pleasure of reading his essay; moreover, that I had no knowledge—*triste dictu*—of the *Transactions of the Texas State Medical Association*. The idea, therefore, as laid before the profession in the *New York Medical Journal* is entirely my own property. I owe it to myself to clearly make this statement without deserving the apostrophe: *O vanitas vanitatum!* The careful and impartial reader, on studying Dr. McLaughlin's essay and my own, will at once recognize the fundamental difference existing between the two. The chief points of distinction are the following:

My esteemed colleague applies the laws of acoustics and light to the mutual action of bacteria and organic molecules of the human or animal body upon each other—*i. e.*, he says that the organic molecules take up the same vibration the germ-cells are endowed with, whereas the writer of these lines simply maintains that the normal molecular vibration of the organic molecules must be changed into one corresponding to the biological requirements of the respective bacteria in order to enable these latter to assimilate the elements necessary for their growth and multiplication. At this point I must confess to you that the application of the law of wave interference, as understood in optics and acoustics, to the reciprocity of influence existing between bacterial cells and organic molecules of the system had entered for a moment my mind, but that after some reflection I did not deem it justifiable to apply these laws to the pathological processes in question. How right I was in giving up this idea I can demonstrate best by quoting Dr. McLaughlin's views on the point.

"Sound-waves," says this author, "can be caused to so act upon each other that, instead of producing sound, they will cause silence. Illustrations could be given, if it were necessary, to prove that when waves of light are met by other waves of light, whose periods of vibrations are half a wave length behind the first, darkness will be the result. The waves of the one set are quenched or antagonized by those of the other, in accordance with the law of wave interference. The principles involved in this law of interference furnish an explanation why ptomaines are inhibitory, and sometimes poisonous, to the bacteria cells which originated them. The amount of antagonism exerted by the ptomaines, in accordance with this theory, would depend entirely upon the extent of interference which its molecular waves would cause in the molecular waves of bacterium cells. As the amount of interference in waves of sound and waves of light varies, and thus produces variable amounts of sound from zero up, there are ptomaines whose inhibitory power over the actions of cells differs in the same degree and from similar causes."

Thus far Dr. McLaughlin. I venture to remind the author of the fact that metabolism products in general are obnoxious to their originators. Urea, carbon dioxide, etc., are poisonous to our own system. I do not consider it appropriate to resort to the law of wave interference in order to account for the detrimental influence that some ptomaines may exert upon their own producers, notwithstanding this law of interference explains so many surprising phenomena in the field of optics and acoustics. Moreover, I do not regard an antagonism between ptomaines and the corresponding bacteria to be the cause of the arrest of a nosological process. Else how could we meet with chronic microbian affections?

How could the bacilli of tuberculosis, as I said in my own essay, proliferate in the lung tissues for a period extending often over many years? Or how could the germs of anthrax, septicæmia, etc., thrive in blood taken from animals that are at the height of the infection, whose blood is abounding already in the respective bacteria? Sirotinin,* by impregnating different culture soils with the products of different bacteria, has obtained the following results as to the influence exerted by the products of bacterial body metabolism upon the growth of the respective micro-organisms:

1. *Proteus vulgaris.*—No difference in growth between control-plate and proteus-agar.
2. *Bacillus fluorescens liquefaciens.*—Normal growth, if old culture sterilized by filtration.
3. *Bacillus indicus ruber.*—Growth good.
4. *Spirillum choleræ asiaticæ.*—Growth good.
5. *Bacillus anthracis.*—Growth good.
6. *Bacillus typhi abdominalis.*—Growth good.

As to the explanation of immunity, I reached a conclusion diametrically opposite to that of Dr. McLaughlin. According to his idea, immunity is based upon the permanency of newly formed molecular combinations of the albuminoids, whereas I ascribe this phenomenon to the re-enforced dynamic inhibitory power of the system whose molecules are in a state of normal molecular vibration. Thus, in my own mind, natural and acquired immunity represent the same condition of the system. I refer here to the genuine, lasting immunity, not to the temporary one. Natural immunity, I maintain, is due to a congenitally strong dynamic inhibitory power against microbian influence, tending to change the normal dynamic state of the organic molecules, whereas pathologically acquired immunity is effected by the regaining and simultaneous re-enforcement of the control, once lost, over the normal molecular vibration of the whole human or animal organism. I did not dwell in my paper on the immunity due to inoculations with ptomaines, not having collected sufficient material regarding this subject.

William Moor, M. D.

ASHEVILLE, N. C., AS A WINTER RESORT.

Dieppe, France, *August 20, 1891.*

To the Editor of the New York Medical Journal:

Sir: In your issue for August 1, 1891, is an article on Asheville, N. C., as a Winter Resort, by Dr. H. Longstreet Taylor, in which the writer implies misrepresentation on my part of the characteristics of Asheville in my Notes on Some Southern Health Resorts, published in the *New York Medical Journal* for June 13, 1891. He implies misrepresentation, but at the same time disclaims any intention to accuse me of willful perversion of the facts. Let us then analyze the facts. I will, in the first place, acknowledge that the phrase "*constant* rain and fog" was not scientific truth, but merely a colloquial exaggeration, meaning an extraordinary degree of unpleasant weather. The doctor brings his own tables to show that we are both right as regards the undue quantity of rain during January, February, and March. He says of the fog that the Signal Service station records but one fog in the three months. This is indefinite. One might observe but one fog off the banks of Newfoundland in the same space of time, the same fog being continually present. If he means that there was but one foggy day in the whole three months, I should be glad to learn whether the bureau records the nights of fog lasting late in the mornings. The doctor's figures show as regards the dryness of Asheville at this season a mean relative humidity varying from 65·74 to 70·93, which is not dry, but very moist. He goes on to say that "patients wintering here are not enervated by the heat and moisture as they are in more southern places." This statement is made with the probable knowledge of the fact that Aiken, S. C., immediately south of Asheville, has an average relative humidity of 58, and is perhaps the dryest place east of the Rocky Mountains, and at the same time cool and invigorating in winter.

Two statements of the doctor's I must place in juxtaposition, since his article is intended to throw into discredit my facts as regards the soil in Asheville and the mud of the late winter season. They are somewhat contradictory:

"The ground dries very quickly after rain. This is due partly to the sandy subsoil and to the excellent natural drainage."

"When this is done, the mud can never get the upper hand again"—in reference to an appropriation for paving some of the streets. The vote, by the way, on this appropriation had not been taken when my article was written.

When Asheville has removed from the streets some of those huge stepping-stones, projecting from eight inches to a foot or more above the street level in some places, for the convenience of persons desiring to cross the streets after a rain, and when the pavements are completed, visitors will be glad, perhaps, to believe Dr. Taylor's dictum that the sandy subsoil causes the ground to dry very quickly after a rain, in spite of the superimposition of a moderately thick stratum of clay. At present, however, these stones must stand as indestructible monuments to the truth of my assertions.

My criticism of the Asheville hotels is a grievance to the doctor. But he must bear in mind that I have no prejudice, and, except for its excellence for invalids, I would not recommend one above another. He says that "the Battery Park Hotel is the leading hotel both in situation and in reputation." I was a guest at this hotel sufficiently long to learn that the food and condition of the rooms were not such as would cause me to recommend it now to patients, whatever may have been its reputation in the past. I remember seeing Dr. Taylor's office very close to this hotel, and I presume his convenience to it would make him much more familiar with its advantages than I could become in a very short sojourn. As for the Swannanoa and Oaks, I should have hesitation in recommending them to healthy people, and could not therefore very well stretch my conscience to the extent of advising any invalid to go there.

The following sentence from Dr. Taylor's article would perhaps lead to misinterpretation did I not quote immediately following it the sentence from my original paper, to which he refers:

"The Kenilworth Inn, situated in the same quarter of the town, is also lauded, although still uncompleted."

From my original paper:

"A number of good hotels are planned, and one—Kenilworth Inn—will be opened next season."

After all, argument about trivial details leads generally to misunderstanding and confusion. We differ in opinions. Dr. Taylor resides in Asheville near the Battery Park Hotel, and there may be a certain amount of personal equation to be considered under such circumstances. For myself, I was a stranger visiting many resorts and desiring to ascertain truths without bias of any kind—facts which would be of service to me, and I hope to others, for guidance in the selection of climatological stations for health-seekers.

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* *Zeitschrift für Hyg.*, Bd. iv.

Asheville should be content with a nine months' season. It is not an all-the-year-round resort, and the sooner this is known the better. There are several places quite as near and much better fitted for invalids during the months of January, February, and March. Frederick Peterson, M. D.

THE ADIRONDACKS AS A WINTER RESORT FOR CONSUMPTIVES.

Saranac Inn, Adirondacks, *August 18, 1891.*

To the Editor of the New York Medical Journal:

Sir: Some time ago, in your issue for June 13th, an excellent friend of mine, Dr. Frederick Peterson, published some very readable Notes on Southern Health Resorts, in which, however, he incidentally alluded to the Adirondacks (page 678) in a manner quite unsatisfactory to the many partisans and beneficiaries of this noted region. He was evidently still under the domination of the old idea that cold is unfavorable to persons having pulmonary phthisis when he wrote derogatorily about "the fashion of wintering in the Adirondacks with delicate lungs." Now, the fact is that, in the opinion of many of the most competent observers who have had actual experience with pulmonary tuberculosis in the Adirondacks during all seasons (an opinion in which your correspondent most heartily shares), the winter here, far from being the most trying part of the year for patients "with delicate lungs," is, on the contrary, the best. Such patients experience the well-known tonic effects of cold in a marked degree. The appetite is increased, the body gains in weight, sleep is sounder than in warmer weather, and greater vivacity denotes an increased well-being of the patient. These statements apply to the majority of tuberculous invalids seeking health in this region. There are a few, it is true (about 6 per cent., in my experience), who are unfavorably affected by the cold found here, but I think that this percentage is less than would be expected among patients of all degrees of vitality, coming from nearly all sections of the country, who are health-seekers in these mountain forests. Indeed, it would seem, from the consideration of several cases that have passed under my own observation, that patients thrive here the best in winter who come from Southern latitudes where snow is a rarity, and in whom the lungs have never before been called upon to inhale an atmosphere at the temperature of 25° below zero, as sometimes obtains here. Let it be understood, then, that "delicate lungs" generally thrive here in winter.

The favorable action of cold upon tuberculous lungs has been observed by many writers. Bodington, Wise, Hermann Weber, and others have noted this action, and in a comparatively recent monograph (*The Preferable Climate for Consumption*) Dr. Denison, of Denver, has devoted a chapter to its consideration, and shows the advantages that a cold climate possesses over a warm one in this respect. It must be admitted, then, that cold climates, other factors being equal, have a special benefit to bestow upon the phthisical. Winslow W. Skinner, M. D.

SALOL IN THE TREATMENT OF TYPHOID FEVER.

Mitchellsburg, Ky., *July 23, 1891.*

To the Editor of the New York Medical Journal:

Sir: Permit me through the columns of your most excellent journal to say a few words in a practical way about typhoid fever. While perhaps all men in the medical profession to-day are agreed that typhoid fever is due to a specific cause, there appears to be no well-defined opinion expressed as to the primary field of action of the specific micro-organism; consequently there is nothing to guide the practitioner of medicine in directing his therapeutics against the inroads of the enemy.

In consideration of this fact, with the inability of the doctor to do more than try to meet the indications as they arise and make a feeble effort to sustain his patient's vitality under the present view of the ætiology and pathology of enteric fever, I wish to state the following facts:

The ætiology of typhoid fever consists in the typhoid bacillus being received through the stomach into the small intestine, and being taken up by the glands of that organ in a living, active state, without which there can be no typhoid fever.

The bacillus is not absorbed into the blood or carried into the general system, and is inert until it reaches the glands of the small intestine. The reason that all people who drink from the infected water supply do not have typhoid fever is either because the virulence of the specific micro-organisms is destroyed by the gastric juice, or, if they escape the action of the stomach, they fail to be taken up by the glands of the small intestine.

The pathology of typhoid fever consists in the bacilli finding in these glands a suitable soil for their reproduction and growth, the result of which is the production of a ptomaine which is absorbed into the general system and poisons every tissue of the body, resulting in a septic fever peculiar to its producing cause. The fever with all its complications will be in proportion to the amount of ptomaine absorbed and the resistance of the patient's vitality.

The bacilli that produce the disease are not absorbed, but the product of their reproduction and growth; the bacilli being developed in the glands and evolved back into the intestinal canal and eliminated with the ejecta of the bowels. Relapse and exacerbescence are due to the invasion of other glands, which may and often does follow indiscretion in diet, which places the glands in a favorable condition to be acted on by the bacillus, while without this disturbance they might have escaped.

From the very nature of the disease we can readily understand why we have a stage of incubation ranging from seven to twenty days or longer, as during this time the bacilli are being developed in Peyer's patches and the solitary glands of the intestine, and producing locally a poison that is being carried by absorption into every tissue of the body; and here we are able, by careful observation, to watch the slow development of a case of blood poisoning, or septic state, which we are pleased to call typhoid fever.

The only lesion due to the direct action of the typhoid bacillus is that of the glands of the intestine; all other lesions found post mortem are due to the absorption of the ptomaine of the bacilli, and may be produced by the action of other forms of septic poison in the absence of typhoid fever.

In the *New York Medical Journal*, under date of June 27th, 1891, page 758, will be found mention of a paper read by Dr. McWeeney before the Royal Academy of Medicine in Ireland, upon the subject of typhoid organisms. The points of interest in the paper are, first, Is the bacillus really the cause of typhoid fever? second, the difficulty in making cause and effect a matter of absolute certainty was the impossibility of inoculating animals with typhoid. But it is not strange that Dr. McWeeney and other investigators have not produced typhoid fever in animals by inoculating them with a culture from the spleen, the mesenteric glands, or the liver, for in those organs they could only find a bacillus of septic fever, due to the absorption of the product of the typhoid bacillus in its reproduction and growth in the glands of the small intestine. So, if Dr. McWeeney will make his culture with the bacillus obtained from the infected Peyer's patches in typhoid fever, and then inoculate the glands of the small intestine of the animal, he will produce typhoid fever. The typhoid bacillus, introduced into any of the tissues of the body except the glands of the small intestine, could only produce a septic condition and not typhoid fever.

With these facts before us relating to the ætiology and pathology of the disease, we are prepared to institute a line of treatment based upon a rational line of thought. And here we see the importance of an early diagnosis; and, when we have determined that the case is one of enteric fever, let us introduce into the intestinal canal an antiseptic by which we may sterilize the bacilli as far as possible in their field of action. To do this, we must be able to give a remedy that will not be absorbed by the stomach, for I doubt the propriety of attempting to reach the small intestine with an antiseptic solution by a rectal tube or any form of irrigation.

The gastric juice being acid, salol at once suggests itself. Owing to the fact that salol is a compound of two acids, it passes through the stomach unchanged and reaches the intestinal canal as salol, and there breaks up in the alkaline fluid of the intestines and returns to its original constituents—salicylic and carbolic acids—both of which have some acknowledged antiseptic properties. Now, if it is proved by laboratory experimentation that we have a better remedy than salol, we will gladly accept it; but salol illustrates the principle upon which we can pass a remedy through the stomach without its antiseptic property being neutralized by the gastric juice.

It is not necessarily essential to reasonable success that we introduce into the intestinal canal a germ-killer; but, if we can furnish a remedy in sufficient strength to materially retard the reproduction of the bacilli, we have accomplished a great deal by limiting the amount of ptomaine produced, and, as a necessary result, the degree of fever and its complications

In the next place, we should make an effort to neutralize the action of the ptomaine upon the tissues by giving a suitable remedy that is absorbed by the stomach.

And just here I will remark that I believe that all the good we have derived from alcohol in its various forms and carbonate of ammonium, etc., in treating typhoid fever, is due to their properties of neutralizing or counteracting the effect of the ptomaine on the tissues.

We see in nature an effort to throw off the bacilli from the intestinal tract by the diarrhœa in almost all cases, and, after the system is more or less saturated with a poison from the absorption of the ptomaine, we find our patient with a temperature of 103° to 105° F. and drenched with perspiration—Nature's effort to eliminate the poison from the general system.

In a few cases of typhoid fever I have used salol and listerine with the following results: After the first twenty-four or forty-eight hours the tongue became moist and the diarrhœa less troublesome, there was no tympanites, the fever remained mild, there was no delirium, and the cases were not so protracted.

Though my observation of the results of treatment based upon these ætiological and pathological considerations is limited, I am persuaded that it is possible to reduce the death-rate to one per cent.

We are now able to understand just why it is so necessary to disinfect the discharges from the bowels. Also we shall be more likely to have our instructions in that respect carried out, as the laity will be able to appreciate the danger of their neglect, for we can, with every assurance of being correct, say to them that the intestinal canal is the only possible source of infection from the patient.

In connection with the antiseptics indicated in the intestinal canal and the use of those remedies that are best calculated to neutralize the action of the ptomaine in the system, those principles that govern us in sustaining vitality and keeping up nutrition are to be associated in the case. J. F. Purdon.

CONGENITAL MICROPHTHALMIA.

Lafayette, Ind., *August 27, 1891.*

To the Editor of the New York Medical Journal:

Sir: On August 11th Mr. D., aged thirty, consulted me for trouble with his right eye, which was found to be eye-strain. During the examination I noticed a very fine glass eye in the left orbit. He informed me it covered a congenital defect. He removed the shell, and beneath it was the following condition of microphthalmia: The eyeball was of one third the size of its fellow. Tension normal. Cornea rudimentary. The iris could scarcely be made out beneath; of about one quarter the size of the right iris. No pupil; the iris completely filling the space usually occupied by the pupil. There was absolutely no vision. The eye appeared to have ceased its growth about the seventh or eighth month of fœtal life. The eyeball was much congested, due, I think, to a too constant wearing of the artificial shell. He had full control over the eye, causing it, with the superimposed shell, to move in any direction desired. The rarity of the condition has led me to place this case on record.

George F. Keiper, M. D.

Book Notices.

BOOKS, ETC., RECEIVED.

Minor Surgery and Bandaging, including the Treatment of Fractures and Dislocations, Tracheotomy, Intubation of the Larynx, Ligations of Arteries, and Amputations. By Henry R. Wharton, M. D., Demonstrator of Surgery and Lecturer on Surgical Diseases of Children in the University of Pennsylvania, etc. With Four Hundred and Three Illustrations. Philadelphia: Lea Brothers & Co., 1891. Pp. vi-13 to 497. [Price, $3.]

Diseases of the Nasal Organs and Naso-pharynx. By Whitfield Ward, A. M., M. D., etc. New York and London: G. P. Putnam's Sons, 1891. Pp. 10-165. [Price, $1.]

The Medical Register of New England. By Francis H. Brown, A. M., M. D. Boston: Damrell & Upham, 1891. Pp. xiv-584.

Injury to the Thoracic Duct, with an Unique and Inevitable Death by Inanition. By Alvin Eyer, M. D., Cleveland, O. [Reprinted from the *Medical Record.*]

Infection through the Drainage-tube, the Result of the Bacteriological Examination of Drainage-tube Fluids in Sixteen Consecutive Cases of Cœliotomy. By Hunter Robb, M. D., and Albert A. Ghriskey, M. D. (Read before the Hospital Medical Society, May 18, 1891.) [Reprinted from the *Johns Hopkins Hospital Bulletin.*]

Trachoma and its Treatment. By W. Cheatham, M. D., Louisville, Ky. [Reprinted from the *Ophthalmic Record.*]

Employment of Pilocarpine Muriate in Labyrinthine Disease, with Report of Cases. By S. MacCuen Smith, M. D. [Reprinted from the *Transactions of the Philadelphia County Medical Society.*]

A Page of Medical History: Molière and the Doctors. By W. J. Conklin, M. A., M. D., Dayton, Ohio. [Reprinted from the *Transactions of the Ohio State Medical Society.*]

Curability of Consumption. By Charles W. Dulles, M. D., Philadelphia. [Reprinted from the *Transactions of the Medical Society of Pennsylvania.*]

The Influence of Heredity in producing Disease and Degeneracy, and its Remedy. (An Address delivered before the Indiana State Medical Society, June 10, 1891.) [Reprinted from the *Transactions of the Indiana State Medical Society.*]

Addresses, Papers, and Discussions in the Section in Obstetrics and Diseases of Women at the Forty-second Annual Meeting of the American Medical Association, at Washington, D. C., May 5 to 8, 1891.

La Retenzione della Placenta. Pel Prof. Felice Meola. [Estratto dal *Giornale Intern. delle Scienze Mediche.*]

Proceedings of the Connecticut Medical Society, 1891. Ninety-ninth Annual Convention, held at Hartford, May 27th, 28th, and 29th. New Series, Vol. IV, No. 4. Published by the Society.

Eleventh Annual Report of the State Board of Health of New York. Transmitted to the Legislature, February 20, 1891. Vols. I and II.

Ninth Annual Report of the Provincial Board of Health of Ontario, being for the Year 1890.

Reports on the Progress of Medicine.

PÆDIATRICS.

By FLOYD M. CRANDALL, M. D.

Congenital Muscular Torticollis.—Petersen (*Rev. mens. des mal. de l'enfance*, June, 1891), in considering the ætiology of this condition, arrives at the following conclusions:

1. Sufficient proof is not found in medical literature to lead us to admit that torticollis is due to rupture of the sterno-mastoid muscle during confinement.
2. Clinical observation also argues against muscular rupture.
3. Shortening of the sterno-mastoid during intra-uterine life has been demonstrated in a number of instances.
4. Clinical observations and experiments on animals prove that prolonged approximation of the two extremities of a muscle during the course of development produces shortening of that muscle.
5. The intra-uterine development of torticollis, its greater frequency on the right side, and its equally frequent occurrence in breech presentations are most readily explained by anomalies in the development of the amnion.
6. Stromeyer's theory of the traumatic origin of torticollis has not been sufficiently demonstrated to warrant the conclusion that it is the only available theory.
7. Torticollis should not be attributed to lack of skill on the part of the accoucheur.

Intermeningeal Hæmorrhages in the New-born.—In an article in the *Wiener klinische Wochenschrift*, No. 46, 1891, there is a discussion of single, primary meningeal hæmorrhages. Those due to laceration of the larger cerebral arteries and those following infectious diseases are excluded from consideration. Such hæmorrhages may occur between the arachnoid and the pia, being located on the convexity of the hemisphere. They are frequently bilateral. Another form is a combination of this condition with hæmorrhage between the arachnoid and the dura. This condition is often very serious in its results, symptoms of brain compression usually being present, and sometimes even asymmetry of the cranium. Such children are born in a state of asphyxia; the lungs are collapsed, but there are no ecchymoses on the pleura. Such children sometimes live. The condition does not always follow a difficult labor, but is sometimes found where the labor was normal. It is perhaps explained by some displacement of the parietes of the cranium causing compression of the longitudinal sinus, which would cause regurgitation of blood through the veins of the convexity sufficient to produce rupture.

Purulent Pericarditis in Children treated by Free Incision.—Davidson (*Brit. Med. Jour.*, March 14, 1891) reports two cases of great interest. The first patient was a boy six years old, who gave a history of injury to the foot three weeks before. On examination, necrosis of the third metatarsal bone was found, also a subperiosteal abscess over the eighth rib on the right side. A pericardial rub and pleuritic frictions on both sides could be heard. There were also dullness, tubular breathing, and crepitations at the apex of the right lung. Three days later these signs had disappeared from the apex and appeared at the base, forming a case of so-called "wandering pneumonia." Three days later, the temperature having risen to 103° F. and the cardiac dullness being greatly increased in extent, a hypodermic needle was introduced, but without result. In three days more, the needle having found pus, a free incision was made in the fifth interspace and eight ounces of pus were withdrawn. The operation seemed to give some relief, but the temperature soon rose and the child died on the seventh day.

At the autopsy the lungs were found to be generally adherent to the chest walls and to the pericardium. There was a spot of consolidation at the base of the right lung. The heart was thickly covered with lymph, but was not adherent at any point to the pericardium.

The second case was of a different character, and there was no suspicion of septic infection. The patient was a boy about seven years old. There had been cough, feverishness, and pain in the side for about two weeks. Examination of the chest revealed the usual signs of pleuritic effusion on the left side, the heart being displaced to the right. Pus was obtained with the hypodermic needle and upon incision ten ounces were removed. Though the drainage was perfect, the temperature gradually rose during the next six days. Examination revealed an increased area of cardiac dullness, and pus was obtained with the syringe. An incision was then made into the pericardial sac and several ounces of creamy pus flowed out. The temperature rapidly subsided, the symptoms were relieved, and the child made a good recovery from both operations in five weeks.

In this case the effusion of lymph probably occurred over the pleural and pericardial surfaces at about the same time, but the formation of pus took place in the pleura sooner than in the pericardium. The author has observed the same sequence in other cases. He regards it as an extremely rare event for fluid to make its way from the pleural cavity into the pericardial.

An Analysis of 1,008 Cases of Scarlet Fever.—Caiger (*Lancet*, June 6, 1891) reports a series of observations made at the Southwestern Fever Hospital of London during 1890. But few cases appeared during the first half of the year. A rapid increase was noted in September, and reached its highest point in October. In studying the age distribution it was found that, beginning with eight cases of children under one year, the number steadily increased with each year of life up to the fifth year, when 123 were admitted. From that time there was a steady decrease in numbers to the tenth year. The numbers for the two sexes were nearly equal. Under five years the males somewhat exceeded the females, while after that age the preponderance was slightly in favor of the females. The death-rate was 4·67 per cent., which must be considered exceedingly satisfactory. Otitis with a purulent discharge was the most frequent complication. It occurred in 125 cases, or 12·9 per cent. The younger the child the greater the apparent liability to the disease. Though a majority were due to otitis media, a few were caused by simple inflammation of the external auditory canal. There seemed to be a direct connection between the severity of the scarlatinal attack and the early development of this complication. In the milder cases the patients were attacked less frequently and at a later period. The continuance of the discharge varied from a few days to several months. The mastoid was involved in but three cases, and there was no case of pyæmia or meningitis.

Adenitis occurred in 69 cases. This does not include the glandular swelling directly associated with the faucial inflammation. The affection consisted in rapid swelling of one or more of the glands of the neck, usually at the angle of the jaw, attended by a rapid rise of temperature quite apart from the original febrile attack, from which it may be separated by an interval of two or three weeks. It usually rapidly resolves, but in 17 of these cases suppuration occurred. A majority of these patients had no albuminuria, but it was more common in those suffering from adenitis.

Rhinitis, with more or less purulent discharge, occurred in 58 cases. It was frequently associated with otorrhœa and was relatively more common in young children. This does not include those cases in which the discharge occurred during the first week, at the height of the fever. At that time, in common with several others, it is not so much a complication as a symptom, and is of grave prognostic value. Eczema appeared in 32 cases, the most frequent situations being at the junction of the alæ nasi and the upper lip and behind the ears. It was most common in young patients. Simple albuminuria occurred in 3·1 per cent., ulcerative stomatitis in 2·8 per cent., nephritis in 2·7 per cent., rheumatism in 2·7 per cent., and conjunctivitis in 1·24 per cent. of the cases.

Suppurations Secondary to Empyema in Children.—Hagenbach and

Burckhardt (*Jahrb. f. Kinderh.*, xxxi) refer to certain forms of suppuration, secondary in character, which are especially common in young children. These are inflammation of the middle ear, pericarditis, phlegmon of the neck, pemphigus, and cerebro-spinal meningitis. They are probably due to a micro-organism derived from empyema or some collection of pus. The pus of these secondary collections has frequently been found to contain a diplococcus strongly resembling that of Demme.

Rheumatism and Chorea as Complications of Scarlet Fever.—Carslaw (*Glasgow Med. Jour.*, May, 1891) reports extensive observations on this important subject, made at the Belvidere Fever Hospital during a period of about two years. No case is included in which the patient was admitted after the eighth day of illness, or died before the end of the first week. The record consists of 533 cases of scarlet fever, of which 62 showed at some stage joint affection or involvement of the heart. Two were possibly septic, leaving 60 undoubted cases. Regarding sex, 8 per cent. were males and 13·5 per cent. females. Only one patient under three years of age had any articular affection. The age of the others is shown by the following table:

Between	1 and	5 years,	6·7	per cent.
"	6 "	10 "	9·7	"	"
"	11 "	15 "	14·3	"	"
"	16 "	20 "	18·4	"	"
	Above 20	"	37·5	"	"

In considering the question of sex a preponderance of female patients is found, and an increasing preponderance of females as we pass from childhood to adult life. There is also an increased proportion of the total of cases of scarlatinal rheumatism as age advances, and this is in keeping with the statistics of rheumatism as a separate disease. The preponderance of females in patients below fifteen years corresponds to the facts for rheumatism above, though after that age ordinary rheumatism becomes as common among males as among females, but in the case of scarlatinal rheumatism the proclivity of females continues.

Of these cases, 13 were classed as slight attacks of scarlet fever, 33 as moderate, and 14 as severe. This shows that no case of scarlet fever is free from the possibility of rheumatism.

It is usually believed that the onset of rheumatic symptoms occurs at the end of the first or the beginning of the second week, and the author's observations confirm this impression. In only 5 cases was the onset after the second week. In thirteen cases it was between the ninth and thirteenth days; in 33 it was not later than the eighth day; and in 34 it was between the fifth and seventh. In one instance rheumatism began at the very beginning of the scarlatinal attack, and a few days later there was evidence of mitral disease. The end of the first week, then, is by far the most frequent time for the onset of this complication, and the fifth, sixth, and seventh are the favorite days.

The exact connection between scarlet fever and rheumatism has been the subject of much discussion. The author inclines to the belief that the rheumatism may be due to a harmful exposure to cold. The end of the first week is just the time when the temperature is returning to normal, the rash disappearing, and desquamation about to begin. The surface is uncomfortable and perhaps moist with perspiration, the patient is restless, and the arms are thrown out from beneath the bedclothes. That this may have some influence in producing rheumatism would seem to be borne out by the fact that of all the joints the wrists and hands suffer most.

The prognosis of scarlatinal rheumatism is usually favorable. Suppuration rarely occurs.

In but three cases did chorea develop. The onset of this complication was after the eruptive stage was quite over. The patients were all girls: their ages were thirteen, seven, and three and a half years, respectively. The rarity of chorea after scarlet fever is strikingly shown by the fact that these three cases were the only ones occurring in the whole hospital during the period under consideration.

Somnambulism.—This peculiar and interesting condition is to be regarded as a neurosis. It begins at about nine or ten years of age, and commonly ends during mid-adolescence, though in severe cases it sometimes continues through life. Dr. Clouston (*Edinburgh Med. Jour.*, May, 1891) believes that it has a close hereditary relation to epilepsy, hysteria, and insanity, though a much less intense neurosis than either of these. It has the closest analogy to the condition of hypnotism, which is always more easily induced in persons of neurotic and unstable brains than in ordinary constitutions. Both are conditions of half sleep. For the production of this disorder there is needed a concurrent series of conditions: a nervous heredity; a neurotic constitution of brain, which produces that state of brain cortex that tends to automatic rather than volitional action; the pre-reproductive stage of development; the time of night; and the condition of sleep—every one of which represents lowered brain energy.

The Treatment of Diphtheria with Ice.—Sevestre (*Bull. de la soc. méd. des hôp.*, No. 34, 1890) describes his method of treating diphtheria by means of small pieces of ice, which are placed in the mouth of the patient every ten minutes, night and day. The treatment should not be relaxed till the symptoms have decidedly decreased. This treatment is efficient in checking the formation of membrane and reducing the swelling, but should not be used to the exclusion of other treatment.

Sloughing Ulceration in the Larynx of a Child.—Dr. Henry Ashby (*Brit. Med. Jour.*, April 25, 1891) reports this condition as occurring in a child of twenty months. Death had occurred from catarrhal pneumonia and miliary tuberculosis. The child when first seen was suffering from laryngeal stenosis, for which intubation was performed, the tube being removed on the fourth day. The dyspnœa did not return after removal of the tube, but there was evidence of pneumonia at one base. Four weeks later measles developed, the pneumonia increased in severity, and the child died of it. The right lung was found to be semisolid with caseating broncho-pneumonia, breaking down into small cavities. There were miliary tubercles in the liver and in the left lung. In the pharynx there was extensive superficial ulceration exposing the muscular coat. Ulcers were also found on the vocal cords, and there was superficial ulceration in the trachea. Examination with the microscope, however, showed that the ulceration was not tuberculous, but inflammatory, resembling cancrum oris. This ulcerative process seemed to have been a sequel of the measles.

Disorders of the Nerve Centers in Whooping-cough.—Troitzky (*Jahrb. f. Kinderh.*, xxxi, 1890) believes that certain disorders of sight, hearing, and speech and certain paralyses are due as well to œdema of the brain as to hæmorrhages into the meninges or brain substance. Improvement is rapid or slow in proportion to the extent of the lesion. He reports three cases in support of his theory.

An Irregular Form of Whooping-cough.—Eigenbrodt (*Ztschr. f. klin. Med.*, xvii, 16) describes what he believes to be an abortive or irregular form of whooping-cough. There is entire freedom from symptoms during the day, but at night typical symptoms appear. There is a spasmodic cough with vomiting, and considerable difficulty in breathing. The disease is contagious, causing a similar disease in others, but it does not give immunity from ordinary pertussis, and that disease does not confer immunity from this.

The Treatment of Habitual Constipation in Children.—Nices (*Practitioner*, May and June, 1891), in discussing the management of this troublesome disorder, speaks strongly in favor of dietetics as opposed to treatment by drugs. He does not, as many writers have done, give a definite list of articles of diet, for he does not believe that a child should be forced to eat what he does not relish, no matter how suitable it may be theoretically. There are always a number of invalids in any school or institution where there is a uniform diet. What is suitable for one may not be suitable for another, and each case must be treated according to its own special requirements. Dietetic treatment may be summed up as the provision of a diet intermediate in composition between milk on the one hand and bread and meat on the other. According to the child's development it should be proportionally rich in albuminoids, fat, and sugar, and poor in starches. All temptations to economy at the expense of quality should be resisted. The growing child requires better food than the adult. Drugs, while they should have a minor position in the management of the disorder, are sometimes temporarily required. The author prefers rhubarb, aloes, iron and myrrh, cinchona, and the various bitters to more modern drugs.

Hæmophilia in a Newly Born Infant.—Jardine (*Brit. Med. Jour.*, March 21, 1891) reports this rather unusual case. The first evidence of bleeding was on the ninth day, and the flow was from the navel. On the eighteenth day hæmorrhage from the mouth, nose, and anus was noticed, and ecchymoses appeared on the chest and on the right knee and elbow. Several joints became distended. The child died on the twentieth day. The mother was not subject to hæmorrhages, but the father and a sister were subject to profuse bleeding from the nose.

The Value of Polyadenitis in the Diagnosis of Tuberculosis in Children.—Mirinescu (*Rev. mens. des mal. de l'enfance*, March, 1891), in a carefully prepared paper on this subject, refers to the fact that positive signs of tuberculosis in infants and young children are lacking, and we are frequently obliged to make a diagnosis of probability even when the disease is well advanced. When active inflammation complicates the tubercular process the diagnosis becomes at times impossible. It is impossible to distinguish a simple from a tubercular broncho-pneumonia by physical signs alone. The diagnosis of abdominal tuberculosis is equally difficult, especially in the earlier stages. A diarrhœa in an ill-nourished child may be simple and due to bad feeding, or it may be due to tuberculosis. The physician who is guided by local symptoms only exposes himself to the danger of making grave errors. It is only by a thorough examination of the whole body that anything like a positive diagnosis can be reached, and every symptom and sign must be taken into consideration.

Some years ago Hutinel observed that the majority of children in a hospital presenting symptoms of tuberculosis also had general adenitis, and he regarded this as a sign of considerable value. Legroux has also pointed out the fact that these enlarged glands are tubercular in character. Children predisposed to tuberculosis are very frequently pale, anæmic, and subject to alternate constipation and diarrhœa with variable appetite. The skin is flabby and evidences of bronchitis are usually present. Groups or chains of small glands may be felt just beneath the skin in the groin, the armpit, and the cervical region under the jaw or behind the ear. They are hard, and upon palpation give the sensation of lead-shot under the skin, being movable and free from adhesions. They are peculiar in two respects: 1. They are so widely distributed as to form a general adenitis, and are found in regions where there is no other trace of tubercular involvement. 2. They never change in size or consistence. In most of the cases presenting this condition examination has revealed other lesions and tubercular bacilli in abundance. It can not, however, be positively said that every child presenting this general adenitis is tuberculous, but with other symptoms, even if vague, its presence is very strong evidence of tuberculosis. Children frequently become tuberculous slowly, showing little evidence of the disease except by a general poor condition and disease of the lymphatic system. Suddenly a bronchitis or whooping-cough develops, to be followed by broncho-pneumonia from which the child dies. The autopsy reveals tubercular lesions of long standing.

General adenitis in syphilis is rare, and appears to be due to cutaneous lesions. In impetigo, adenitis appears suddenly in the vicinity of the eruption. If the impetigo is not cured, the glands rapidly enlarge and may even go on to suppuration.

Adenitis may be classed in four groups:

a. Presents no evidence of tuberculosis to the naked eye.
b. Evidently tubercular; of the size of a small pea.
c. Caseous; of the size of a walnut.
d. Shows small caseous spots; of the size of a millet-seed.

Microscopical examination of these different forms shows their mode of formation, which is described by the author at considerable length.

Septic Pneumonia of the New-born.—Lubarsch and Tsutsui (*Arch. f. path. Anat. u. Phys. u. f. klin. Med.*, January, 1891) report the results of an autopsy upon an infant which had died at the end of the second day. It had had a high temperature with some cyanosis and putrid diarrhœal passages. Pleuro-pneumonia of the left side was found, the whole lower lobe being consolidated. A bacteriological study of the lung resulted in the discovery of a bacillus. The appearance of this germ, its characteristics of culture, and its influence on animals resembled those of the bacillus which Gärtner has described as occurring in an infectious enteritis resulting from the eating of decomposed meat. There is some doubt, however, as to the identity of the two germs.

The Use of Antipyretics in New-born Children.—Eröss (*Jahrb. f. Kinderheilk.*, xxxii, 1, 2) reports the results of observations upon the use of warm baths, antipyrine, and quinine in the fevers of very young children. Among 956 children, 431 had elevated temperature during the first ten days after birth. In 145 cases it was of short duration; in the others it continued for several days. In 184 it was continuous, but in most of the remaining cases it was irregular, being at times normal. It was attributed to gastro-intestinal disorders in 44 per cent., and to some trouble at the navel in 34 per cent. Antipyrine was administered in doses ranging from one grain to two grains and a quarter. If an antipyretic effect was not produced, it was repeated in an hour. The height of the effect was usually seen in less than two hours, but a reduction of temperature sometimes continued for five hours. The rate of the pulse and respiration was lowered, and there was a decided diaphoretic action. Quinine was employed in some cases in slightly smaller doses than antipyrine, but with quite similar results. Its action was a little slower and more persistent. Better results were obtained from warm baths than from the use of either drug. The temperature should be about 95° F., and the bath should last not longer than ten minutes, but, to avoid the danger of collapse, it should not be continued more than five minutes in weakly children. Upon the general condition the result was very satisfactory. Sleeplessness and irritability would usually disappear and the child would fall into a quiet sleep from which he would wake apparently improved. When the temperature is very high a warm bath is an agent of the greatest value.

Congenital Sacro-coccygeal Tumors.—Dr. Beaston (*Glasgow Med. Jour.*, May, 1891) reports the case of an infant suffering from a bulky tumor occupying the gluteal and perineal regions. It was clearly a teratoma. Why this region should be the seat of such growths, and why they should be more common in females, is not clear. Great diversity of opinion exists as to their pathology. They have recently been associated with the post-anal gut by Sutton, who relies on the following points:

1. They contain formed tissues derived from the three germinal layers.
2. In the situation where these tumors are found these three layers are brought together into continuity, temporarily at least.
3. These temporary unions are associated with the existence of a canal and passage, which exist for a time and then disappear.
4. The neurenteric passage between the central canal of the spinal cord and the alimentary canal is the cause of these growths.

This theory, it must be said, has not been accepted by all investigators. As regards classification, the following groups may be recognized:

1. Attached fœtuses.
2. Congenital tumors with fœtal remains.
3. Congenital cystic tumors of various kinds.
4. Congenital fatty, fibrous, and fibro-cellular tumors.
5. Caudal excrescences.

The post-mortem examination in the author's case showed the following features:

1. The lungs and liver were the seat of numerous secondary deposits of soft consistence and of varying size.
2. Below the neck of the bladder the urethra communicated with a large cavity with which the rectum and vagina also communicated.
3. The tumor sprang from the anterior wall of the coccyx, and lay between it and the rectum, extending low down between them.
4. Microscopic examination revealed the presence of skin, thyreoid gland, rudimentary muscle, fat, and cancerous material.

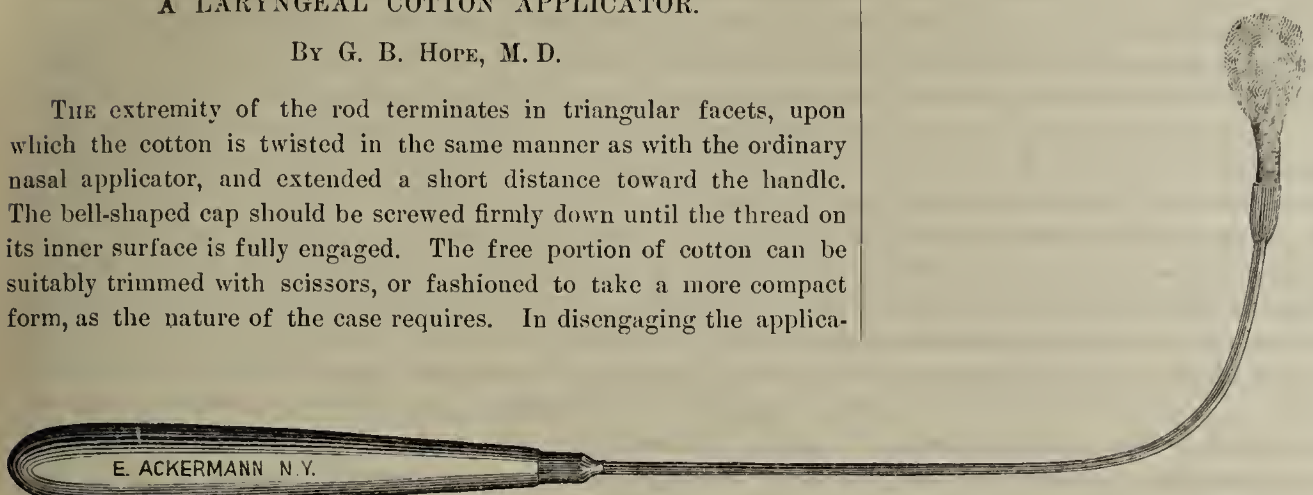
The Period of Development of Acute Rheumatism.—Dr. Clouston (*Edinburgh Med. Jour.*, June, 1891) believes that we have no facts to prove that rheumatism has a neurotic hereditary connection. It has, however, a striking relation to the development of the reproductive power. Macleod has reported 182 cases of acute rheumatism, of which 102, or 56 per cent., occurred before the age of twenty-five; and 94, or more than half, between fifteen and twenty-five. Only 8 cases, or 4·5 per cent., occurred after the cessation of the most active reproductive nisus, fifty. A committee of the British Medical Association obtained the same general results. Of 655 patients, 454, or 70 per cent., had their first attacks before thirty, only 30 of them being under ten, and an insignificant fraction over fifty-five.

New Inventions, etc.

A LARYNGEAL COTTON APPLICATOR.

By G. B. Hope, M. D.

The extremity of the rod terminates in triangular facets, upon which the cotton is twisted in the same manner as with the ordinary nasal applicator, and extended a short distance toward the handle. The bell-shaped cap should be screwed firmly down until the thread on its inner surface is fully engaged. The free portion of cotton can be suitably trimmed with scissors, or fashioned to take a more compact form, as the nature of the case requires. In disengaging the applicator after unscrewing the cap, a small pledget of cotton is pushed against that on the rod from heel to point.



The absolute security when the applicator is properly armed and the readiness with which it can be freed, besides the particular advantage of cleanliness, which has, among other reasons, made cotton preferable to the camel's-hair brush, are all objects that the present instrument is designed to accomplish. The instrument is made by Mr. E. Ackermann, 153 West Twenty-ninth Street.

34 West Fifty-first Street.

Miscellany.

The Relations of Obstetrics and Gynæcology.—The address delivered by Dr. William J. Smyly, master of the Rotunda Hospital, Dublin, at the opening of the Section in Obstetrics at the recent annual meeting of the British Medical Association, dealt chiefly with this subject. We are indebted to the *British Medical Journal* for proof-sheets of the address, which was as follows:

Gentlemen: My first pleasing duty is to thank the Council for the honor they have conferred upon me in appointing me president of this Section. At the same time, I do not flatter myself that this selection has been made because of any peculiar fitness on my part to fill such an important post, but rather as a token of esteem for that great institution over which I have the good fortune to preside. The reputation of the Rotunda Hospital is due, I believe, not so much to its being the oldest and largest institution of its kind in these countries, but to the number of pupils which it attracts and sends forth annually to all parts of the world. The institution consists of four departments, and the numbers annually treated in each are about as follows:

Delivered in the Lying-in Hospital	1,200
Attended in their own homes	1,800
Admitted to Gynæcological Hospital	450
Out-patient Department	8,000.

A good teaching institution must, in my opinion, comprise these four departments. Midwifery and gynæcology must go together; they are sciences which God has joined together and should never be put asunder. In this I am quite aware that I differ from some who have occupied this chair before me, who have expressed a hope that this Section may soon split into two—a wish which I most earnestly hope may never be realized. I would especially refer to the opening address of my immediate and much-respected predecessor, Dr. Savage, of Birmingham, and to the arguments and illustrations which he used in support of his views—which to my mind, so far from proving the necessity for such a separation, most conclusively show that gynæcology and obstetrics are inseparable, and that the obstetrician must also be a skilled gynæcologist.

In the first place, he says: "An obstetrician, having failed to extract the fœtus *per vaginam*, might hesitate to send for his friend, expert in abdominal operations, to perform Cæsarean section." But Cæsarean section should be performed in the first instance, after carefully weighing the indications for it, and not after unsuccessful attempts at extraction, since in the latter case the risk to mother and child would be enormously increased.

Some months ago a woman came to the Rotunda Hospital with a kyphotic pelvis, the tuberosities of the ischia being separated by an interval of only two inches; her former labor had been terminated by craniotomy, and she was very anxious to have a living child. I did not think that induction of premature labor would give any prospect of a living child, so I advised waiting until term and then Cæsarean section. To this she readily assented, so six weeks ago I performed the operation with a favorable result to mother and child. An exact diagnosis and careful measurement of the pelvis are essential preliminaries to scientific treatment, and these are the duty of the obstetrician and not of the pure gynæcologist. For accurate pelvimetry I most strongly commend to you Skutsch's pelvimeter, which I now show, and which is the only instrument by means of which accurate measurements can be obtained.

He next cited a case of puerperal fever, and asked who should be called in as a consultant—a general physician, a gynæcologist, or an obstetrician? Well, I should certainly say the man who combines the greatest amount of skill with the widest familiarity with the disease in question, that is the man who practices both midwifery and gynæcology. "Difficulty," he admits, "might arise in drawing the line"—that is, between midwifery and gynæcology. I would go further and declare it an impossibility.

Let us now endeavor to define this line. A woman presents herself for examination. The first duty of the examiner is to determine the presence or absence of pregnancy, that is obstetrical; but if she happen to be sterile in consequence of endometritis she should, of course, be treated by a gynæcologist. Under his judicious treatment she so far improves as to become pregnant; provided the pregnancy be uterine her case is obstetrical, otherwise gynæcological. Even if the ovum be situated in the uterus her position is still uncertain; for if the conjugate diameter of her pelvic brim be two inches and a half or less, she should go to the gynæcologist, otherwise to the obstetrician. Her pregnancy probably ends in abortion, which does not improve the endometritis, and she acquires the habit of aborting and again requires the gynæcologist; becoming pregnant again, she goes to term, but has placenta prævia. If this be partial, the obstetrician is in place; but if complete, abdominal section is, according to Mr. Tait, advisable, and so a specialist in this department is called in. But after delivery by the obstetrician she may be attacked with septic peritonitis, when, according to Dr. Savage, the gynæcologist is again required. Should her perinæum be ruptured, the obstetrician may at once sew it up; but if primary union be not obtained, she is once more handed over to the gynæcologist. But, gentlemen, such a course would not only be absurd and contrary to the dictates of common sense, it would frequently be fraught with danger.

A few weeks ago my assistant, Dr. Bagot, was called to a patient in the externe maternity. In a tenement-house not far from the hospital he found a poor woman almost collapsed from severe accidental hæmorrhage, which had been at first concealed. The pulse was 148, very small and compressible; her lips were quite blanched, and her pupils dilated. There was jactitation and sighing respiration. The uterus was larger than the term of pregnancy, though the membranes had been ruptured before his arrival, in order to check the bleeding. The child presented in the first position, vertex; no fœtal heart could be heard. The os, which was rigid and undilatable, admitted one finger only. On pushing up the head the blood flowed freely out of the uterus. Labor had not set in, though she had all night suffered from severe distention and pains in the uterus. Believing that owing to her collapsed state it would be impossible to deliver her alive by perforation followed either by version or extraction with the cranioclast, he at once performed Porro's operation, treating the pedicle extraperitoneally by means of a *serre-nœud* and pedicle pins made out of two Peaslee's perinæum needles, as he had no time to procure proper pins. The placenta was found at the operation to be completely detached, and the uterus was full of clots; the child, of course, was dead. She was removed to the Rotunda Hospital on the fourth day after the operation, and has made an excellent recovery, though still very anæmic. Great credit is due to Dr. Bagot for his pluck and promptness in performing an operation under such disadvantageous circumstances, but credit is also due to Mr. Lawson Tait, who had pointed out to us this method of saving life in *ante-partum* hæmorrhages, which would otherwise prove fatal.

The arbitrary division between midwifery and gynæcology is peculiar to this country, and is due to their separation in special hospitals, so that the gynæcologist has come to despise midwifery, and the obstetric physician is often a poor operator. In his introductory address at Cardiff, the late Dr. Meadows, in recommending this separation, stated that the recent advances, especially in abdominal surgery, were due to the pure gynæcologists—a statement, in my opinion, altogether contrary to fact. I do not wish for one moment to ignore the valuable and original work done by Mr. Lawson Tait and others in this country, but, if we take gynæcology as a whole and include our Continental brethren, the obstetricians can show quite as good gynæcological work as the pure gynæcologists.

I would not deny to any man the right to limit his practice as he may see fit; he may treat piles only, or fistula, or cancer, or may confine his attention to abdominal surgery, but what I do maintain is that, in teaching, gynæcology must not be separated from midwifery, and their isolation places such difficulties in the way of students that practical midwifery is not efficiently taught, and the study of gynæcology is more or less optional. Clinical teaching can be efficiently carried out only in the wards of a hospital, where too a limited material can be utilized in teaching a number of pupils. In externe maternities each student requires a number of cases, and it is therefore not to be wondered at that we hear so much of the lack of cases for the instruction of medical students as well as midwives. This appears to me to be the true difficulty in the midwives question; they must first be taught before they can be registered. I do not deny that there are excellent lying-in hospitals in this country, but they are altogether insufficient in number, and their value is diminished by the want of a gynæcological department. In order to appreciate the value of good midwifery, the student must also be shown the evil results of bad midwifery, and that he can only learn in a gynæcological hospital.

Another important matter is accurate clinical observation, and this can only be carried out in hospitals. It was from observing the comparative mortality in two lying-in hospitals that Samuel Weis first got on the track which led to his discovering the cause of puerperal fever, and pointed out its proper prophylaxis. I am a firm believer in the doctrines of that great observer. I believe that puerperal fever is a preventable disease, and therefore a greater responsibility rests upon me in conducting a great lying-in hospital.

Let me now, in conclusion, illustrate this by giving you an account of a septic outbreak which we experienced in the Rotunda Hospital during the spring and summer of last year, and of the measures taken to eradicate the disease. When I was appointed to the hospital on November 1, 1889, there had not been one death from any septic cause for eighteen months—that is, out of two thousand deliveries. These results were so brilliant that I thought it inadvisable to make any changes in the methods employed for the prevention of septic infection. I will briefly state what the routine practice then was. A patient was permitted to be examined abdominally by any number of students, but vaginally by three only and one pupil midwife. Previous to examination the external genitals were carefully washed with soap and water, irrigated with plain water, and finally bathed with corrosive-sublimate solution (1 in 500). The examiners' hands were thoroughly cleansed with soap and water and a good nail-brush, the soap removed by irrigation with carbolic lotion, and the hands then washed in the sublimate solution. Prophylactic douching was only employed in cases of purulent or septic discharges and where operation was required. Douching after delivery was employed only when specially indicated. For example—in hæmorrhage, after the introduction of the hand or instruments, after the birth of a putrid fœtus, for putrid or purulent discharge, and in fever. For some months prior to my appointment plain water alone was used for uterine douching, and though personally I was in favor of the use of antiseptics in such cases, yet with such good results I felt that the experiment might be continued. This favorable state of affairs continued up to January, 1890, when a patient, sent up from the country for induction of premature labor, died of acute septicæmia. It was exceedingly difficult in this case to excite uterine action, the catheter had to be inserted several times, and on one occasion caused some hæmorrhage, having evidently caused a partial separation of the placenta. Hot douches, Barnes's bags, and rupture of the membranes had to be resorted to in order to procure delivery. Acute septicæmia set in the next day with a measly rash, and she died within a week. The health of the other patients during this month was excellent; in one other case only did the temperature reach 101° F.

In February there were seventy-three deliveries, and in seven the temperature reached 101°. In March there were one hundred and eight deliveries, with thirteen morbid cases in which the temperature reached 101°. This great increase in the morbidity alarmed me, and I exhorted the pupils to increased care in disinfection, but still the morbidity increased, twelve cases of high temperature—101° and over—occurring in the first fortnight. I therefore stopped all vaginal examinations, and all trouble ceased. It may seem strange to those who place reliance for information upon vaginal exploration only to hear that in a great institution where deliveries average one hundred a month, we would give up this method of examination; but by abdominal palpation all necessary information can be obtained, excepting only as regards prolapse of the funis and the condition of the os uteri; but the frequent examination of the fœtal heart minimizes the danger of the former case, and the latter is of quite secondary importance.

In April vaginal examinations were resumed, and there were twelve morbid cases out of ninety-six deliveries.

In May one hundred and nineteen women were delivered, with twenty-four morbid cases and one death. In that case fever set in on the fifth day, and she died on the fifteenth. On looking over the bed cards I found that one gentleman who had examined her had also examined two other patients the same day, both of whom became dangerously ill, but finally recovered. I accordingly prohibited his attending the hospital for one month, and again forbade vaginal examinations, excepting only in particular cases when they were made by myself or one of my assistants.

In June vaginal examinations were again permitted, but only by one student, my object being to increase the sense of personal responsibility. During this month one hundred and six women were delivered. There were twenty-one morbid cases, but all excepting one were unimportant; that one died on the fourteenth day. We now returned to antiseptic douching, but in July, out of one hundred and ten cases, there were fourteen morbid, most of them severe, and one death. This patient had a normal delivery, and was not examined vaginally. Her convalescence was normal up to the fifth day, when her temperature rose to 102°. Her uterus was washed out with carbolic-acid lotion (1 in 40), and some putrid clots came away. She was again douched out on two successive days, but pyæmic symptoms set in, and she died at the end of a week. Toward the end of August there were seven cases of severe illness, and I again resorted to the plan which I had previously found so successful—namely, stopping vaginal examinations altogether, but on this occasion without the former good results. Two cases proved fatal. On September 2d another woman was confined, and ultimately died. The first of these three cases had been examined by one student only. Her temperature continued normal up to the fifth day, when it rose to 104·4, with headache and shivering. The uterus was washed out, and the temperature sank to normal, and continued so until the eighth day, when she left the hospital, having signed a declaration that she did so contrary to our wishes. The same evening she had a rigor, and her temperature rose to 106°. A week later she was readmitted to hospital with pyæmia, of which she died six weeks from the date of delivery.

The second patient was not examined vaginally. Her temperature continued normal up to the fifth day, when it rose to 100·4° F. Septic symptoms set in with diarrhœa, and she died on the fifteenth day.

The last patient was delivered on September 2d. Her labor was normal, and she was not examined vaginally. Her temperature continued normal until the fourth day, when she also became septic and died on the twenty-sixth day.

In considering these cases the following points were important: One patient only had been examined vaginally, and in all infection was late, and was due apparently to some error in the management of childbed rather than of the labors. The method adopted up to this time during convalescence was introduced by my predecessor, Dr. Macan. Each patient was given a basin night and morning containing water and a large piece of tenax, and was directed to wash herself, the object being to prevent the carrying of infection from one patient to another by the nurse. It struck me that this method was faulty, because it would be impossible for an ignorant woman lying in bed thoroughly to disinfect her fingers, and I therefore directed that the probationer who attended a patient during her delivery should continue to do so afterward, washing her carefully twice a day, and using the same antiseptic precautions as if she were making a vaginal examination. Each patient was also to have her basin placed over her bed, and to have it carefully disinfected with corrosive sublimate both before and after using it; they had previously been kept on a dresser, and washed with warm water. Since that date we have had upward of 1,000 deliveries in the hospital, but not one death from any septic cause, nor even one case that gave us anxiety.

I hope, gentlemen, that I have not wearied you with these minute details. I have entered into them to show that puerperal fever can be prevented, and that the cause is generally something so obvious that when it is discovered we are surprised at our own blindness in having overlooked it. It is generally held that septic infection is uncommon in private practice, but this I believe to be a dangerous mistake, and the same precautions are as absolutely necessary in private as in hospitals.

If, gentlemen, in these remarks I have been able to show the inadvisability of separating our Section into two, and the advantages that would result from the union of obstetric and gynæcological hospitals, my purpose has been accomplished.

The Uses and Prospects of Pathology.—This was the subject of an address delivered at the opening of the Section in Pathology, at the recent annual meeting of the British Medical Association, by Dr. W. Howship Dickinson, senior physician and lecturer on medicine, St. George's Hospital. We are indebted to the *British Medical Journal* for advance proofs. Dr. Dickinson said: The science before us, that of pathology, must be regarded in its widest sense, not as concerning only the results of disease, but also its processes. In times not very remote little was known of pathology but rough morbid anatomy, and very little of that. A few of the larger facts—the nature of empyema, for example—were known to the ancients, but I can not find that conditions to us so obvious as hepatization of the lung and cerebral hæmorrhage were recognized before the seventeenth century, though the symptoms in connection with them had long been known. Large morbid anatomy has advanced so much, especially during the last hundred years, that it may be believed that there are few changes obvious to the naked eye which have escaped notice. This line of research may be thought to be nearly exhausted, but let us not neglect the old in the interest which attaches to the new. Rough morbid anatomy is the ground-work of medicine, and must ever be essential to the physician as presenting results in a compendious form. It may even happen that results thus broadly presented may be evident to the practiced eye which the microscope might fail to make equally clear. Giving, therefore, full value to simple modes and broad results, let us briefly estimate what has been accomplished in other ways; see what has been done, and what we may reasonably hope for.

Something, what seems to us much, of minute morbid anatomy has been displayed with regard to most organs and tissues, but it is possible that those who come after us may regard our knowledge at best as absurdly incomplete, and exercise toward us the sort of charity which grown persons extend to a child. Of the more substantial organs, we probably know something which, though rough, can not be altogether wrong. But what shall we say about the nervous system? We may say that within the last half century the minute morbid anatomy of the nervous system has been begun, and some lines of light, however dim and narrow, projected into places dark since the creation. If we have not seen all, we have at least seen that there is more to see; we have made darkness visible. Diseases once thought to be functional or without organic change, have been provided, some like essential paralysis, chorea, and diabetes mellitus, with something of morbid anatomy, however incomplete, while others, like tetanus and the paralysis of Landry, have been suspected, if not convicted, of being connected with poisons which, though less visible, are not less material. The mystery of the nervous system has not yet been solved, but, at any rate, we are upon its traces. Let us hold by what we have acquired while we hope for more, and trust to morbid anatomy to save us from such blindness as discerns behind the symptoms of cerebral hæmorrhage or meningitis nothing more material than a change in the electric condition of the nerve cells.

To pathological results—bare observations in morbid anatomy, whether large or small—it must be added that we have acquired some insight, however incomplete, into certain pathological processes, so as to see, as through a glass darkly, by what means and in what way Nature, ever actuated by the best intentions, does the harm which it is the province of our Section to investigate. Foremost among such modes of going wrong comes the embolic, which is too well known to need further notice here than the bare reminiscence of how much of our present knowledge, especially of cerebral disease, is due to it. Next may be mentioned the suppurative, which has a double interest both in what it takes away and what it leaves behind. The loss of leucocytes, under the name of pus corpuscles, explains the relation of blood and pus—hitherto a mystery; and the lardaceous deposit as a consequence gives a morbid interest in what is left. We see in this something which may be expressed roughly, but perhaps not altogether untruly, by an elementary rule of arithmetic—that of subtraction—take pus from blood and lardacity remains. This is important to the surgeon, for it shows how organic change is consequent upon a process which his art can often put a stop to, and it enhances the use of antiseptic methods by which this injurious exit may be prohibited. I do not imply that lardaceous disease has no other origin, for it is often brought about by syphilis, which is attended with a deficiency of blood-corpuscles. It is to be suggested that, whether by escape or other modes of diminution, the balance of the blood is similarly disturbed.

Among pathological processes we may pause for a moment on the results which have been attributed to the excessive and deficient action of oxygen. The physicians who followed upon the great chemical discoveries of the end of the last century and the first half of this, and were, so to speak, brought up upon Liebig, dwelt upon oxygen as the paramount agent in pathology, attributed most diseases to either too much of it or too little, and considered it with too little regard to the vital action of the organism. Bence Jones, great as he undoubtedly was—and here let me contribute my humble branch toward keeping his memory green—posed too simply as the apostle where Liebig had been the precursor, and preached chemistry *in partibus infidelium* with a single eye to abstract material, to the neglect of the properties of living tissues and living organisms. The chemical school saw in inflammation only excess of oxidation or combustion, which may truly exist, and of which the increase of temperature may be a result; but they took too little account of what may be antecedent to this in tissue and vessel. In diabetes they saw little more than a deficiency of oxidation, which indeed there may be, but which must be secondary to changes in organic structure which as yet we have seen but imperfectly.

With regard to gout and uric acid as products of suboxidation, the chemists got to results which seem to embrace the truth less incompletely, though even then there is probably something to learn of organic lesion or disturbance outside the domain of pure chemistry. We know something of hepatic disturbance in connection with uric acid What more will be added, and to what organs and tissues it will relate. is work for the future.

As a definite result of suboxidation, I may point to what has been advanced with regard to hæmoglobinuria. This is closely allied to the symmetrical gangrene of Raynaud, and is associated with localized lividity of the skin. Professor Murri has found reason to believe that this lividity is due to the cutting off of the arterial current and the oxygen which belongs to it by vascular spasm (one of the recognized results of malaria), and that the destruction of corpuscles is due to the carbonic acid in the parts from which the oxygen is then shut off. If they be so, we have a result of suboxidation which deserves a prominent place in chemical pathology. In corroboration of this theory I may mention a fact which came within my own knowledge. A young man who had never had any malarial affection, and was apparently in good health, ran in a race until he fell down from dyspnœa and exhaustion. The first urine passed afterward was loaded with the disintegrated products characteristic of hæmoglobinuria.

A disease which presents itself as of chemical origin, if one due almost certainly to a specific deficiency in the constituents of the food may be so regarded, is scurvy—one of which the chemical secret has apparently been so readily exposed that we ought to be almost within grasp of the chemical antidote. The conditions which give rise to sea scurvy are generally known. It is not probably as widely recognized that scorbutic affections are so common on shore—among infants brought up by hand—that this form of land scurvy is scarcely less important. It is to be attributed to the exclusion of fresh milk by various artificial preparations of it. Not that these preparations are in themselves injurious, but they are insufficient.

Milk in its fresh state, and of good quality, whether from biped or quadruped, is antiscorbutic; preparations or sophistications of it are not so, or not so to a sufficient extent. Scorbutic hæmaturia and scurvy rickets are but too frequent consequences of this substitution. We know the broad result, which is enough for practice, but we do not know the isolated want. What does fresh milk contain which is so essential and so difficult to preserve? We no more know this than what there is in lemon juice to be antiscorbutic, while neither citric acid nor potash are so. The problem is attractive, like a puzzle; some day it will be solved, and then we shall wonder why it was not solved before.

We now approach a field so vast and so imperfectly seen that we can not even discern its extent. So many disorders—it is enough to mention relapsing fever, anthrax, tuberculosis, and leprosy—have been shown to have foreign organisms associated with them, that we may be sure that before long many more will be in the same position. We may—indeed we must—find the essential principle of malaria, probably grossly vegetable: we may find that of syphilis, and can scarcely fail to find those of the infective fevers. But if we find a micro-organism for each disease, the question may still remain, What is the relationship between the two? Does the organism cause the disease, or the disease the organism? And if the organism be the cause of the disease, is it the immediate cause, or is the immediate cause something which the organism produces? Presuming that the bacillus is the essential cause, with or without an intermediary, it will still remain to consider the soil as well as the seed. Some seed falls on suitable ground and bears fruit a hundredfold, other seed falls on unsuitable ground with a negative result. Individual differences in the liability to disease play a large part.

Probably every person who walks a hospital or lives in a city receives habitually and abundantly the bacillus of tubercle; some become tuberculous, others do not. The difference must be in the man, not in the microbe. The condition of the soil would seem to be of more practical importance with regard to tuberculosis than the presence of the seed. Why the bacillus sets up tuberculosis in one and not another must be due to the fitness of the tissues for its retention and maintenance, in regard to which fitness we can discern hereditary influence, that of chronic inflammations, and of what we must be content to express as lowered vitality. How common it is for an attack of pneumonia, which there is no reason to suppose was tuberculous at the outset, to be succeeded by caseations, and that by tuberculosis. The hepatization has provided the fitting soil. Dr. Delépine* gives similar illustrations of the value of tissue change in determining tuberculosis. In the course of a case of low pneumonia dependent on pressure on the vagi, bacilli presented themselves in the sputa, which at first were free from them. In a case of hæmorrhagic disease of the lung in a drunkard bacilli were found in the affected regions, and these only, evidently as a superaddition. Thus, with all respect for the bacillus, let us attach some importance to the receptivity or power of resistance of the major organism.

With regard to bacilli in general, we find that these which so recently were the ultimate results of research are now the bases for further advance. There is no finality in Nature or in human curiosity. Outside the micro-organisms is a pathological system which, though we recognize its existence and its importance, we understand but imperfectly. If the present rate of progress is maintained, we must be on the eve of discoveries in the physiology of disease which can scarcely fail to be of transcendent importance. The discoveries of Pasteur, Wooldridge, Hankin, and Sidney Martin take us beyond the micro-organism into a new field of organic chemistry, beyond the bacterium to its products.

The discoveries of Wooldridge and Hankin with regard to the chemical products of the anthrax bacillus open a vista to new fields of view, while they show much that is old in a new light. The anthrax bacillus has been shown to engender a substance of the nature of an albumose, which is supposed to be fatal to the bacillus itself, while upon the affected animal it has a duplex action; in large doses it produces the symptoms of the disease, in small doses it confers immunity from it. The study of the bacillus has given us antiseptic surgery; the study of its products may lead to we know not what in medicine, whether preventive or curative. Old truths grow, and new ones gather round them. Jenner's vaccination may prove but the prelude to many similar modes of prevention. Immunity from anthrax and from hydrophobia can be brought about by the introduction of a harmless dose of a poison which in large quantity or a more active form is deadly. Why should not tuberculosis be prevented in a similar manner? The prevention of tubercle would seem to be more feasible than the curing of it; but I will not enter upon a subject which is sure to be fully dealt with elsewhere.

In the fact—if it prove so—that the bacillus is killed by its own products we might see something hopeful, were it not that these products, if sufficiently active and abundant to do so, are likewise noxious to the host. The evil, bringing its own cure, is the realization of the old superstition, according to which a viper's bite is cured by its fat, and virtue found in the hair of the dog that bit you. It may, indeed, be thought that the life-products of every organism are injurious to itself. The atmosphere which man creates around him is fatal to him; a fish poisons its own element; and even plants render their soil unfit for their maintenance, not only by exhaustion, but, as some have thought, by excretion. The rotation of crops has been thought to have some such warrant. But when we come to the preventive agency of bacterial products, we come to what is less easy to understand. Small-pox and scarlatina strike once and strike no more. The old idea of something in the blood on what the disease flourished, which was used up by the first attack, does not explain why an anthrax product prevents anthrax, for it does so without any such development of the disease as could be supposed to exhaust its pabulum. Provisionally we are driven to the experience of tolerating from use, which is as old as Mithridates, and of which there are many ancient and modern instances, among which may be mentioned alcohol, opium, and more especially tobacco. Custom doth make it a property of easiness. A small dose would seem to produce a tolerance which only a very large dose can overcome.

The influence of pathology, that is, of the habitual consideration of the nature and results of disease, has been hitherto to confer that most extensive of all knowledge—a knowledge of what we can not do. A study of the results of disease and of its natural laws is a continual warning against the superficial fussiness of the shallow practitioner, who claps on here a poultice and there a blister, and somewhere else rubs in an embrocation assiduously, with a greater faith in the penetrating effects of such applications than knowledge of the profound nature of disease. Pathology teaches humility. But it does something if it teaches the physician that his place is often that of the judicious bottle-holder. He takes no part in the fight, but he supports the combatant in whom he is interested. If he can not cure the disease he does something if he prevents the patient dying of it.

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* An Opinion on Dr. Koch's Treatment of Tuberculosis. *British Medical Journal*, November 22, 1890.

Such is the present position; but who can say what is before us? Pathological discoveries which revolutionize our knowledge of the nature of disease are not likely long to remain without practical results in the cure or prevention of it. In the conflict between man and the bacterium, between the highest of animals and the lowest of vegetables, it must be allowed that so far the vegetable has the best of it; but the animal, though the more vulnerable, is the more inventive, and it may happen in the future as it has in the past that science will prevail against numbers. Bacteriolcgy is in its infancy, but it is gigantic, at least in possibility. To isolate the organic germs of tubercle, leprosy, and other diseases which have similar pathological associations may be but the first steps toward results which may prove to be of importance to humanity beyond all politics, beyond all conquest, beyond all the appliances which minister to ease, comfort, and luxury.

Before I quit these great subjects, the anatomy and physiology of disease, I must glance at an aspect of them which can never be better presented than to a meeting like this gathered from all parts of the kingdom. I refer to what may be called the geography of pathology, the effects of climatic and other local influences in promoting and preventing morbid processes. The therapeutical effects of climate are beyond our proper scope, but, nevertheless, it is impossible to avoid some inferences which spring directly from its pathological effects. The Father of Medicine wrote a treatise on Airs, Waters, and Places, but there is still much to be learned. Of local influences, though we know comparatively little, yet we know enough to suggest that, of the means under our command of modifying chronic disease, change of place is the most important. To treat by change of place is to invoke the great laws of Nature which act without ceasing and upon the whole body, and are the ever-present regulators of all life and growth. To see as much of this as we can, we must look from two points of view, not only at what locality prevents, but what it produces. To know that there is little stone in Ireland and much in Norfolk, little in the western counties, much in the eastern; that, while in England it is most frequent in the colder parts, it is so prevalent in India that lithotomy has long been a native accomplishment; to discern the laws which underlie these facts, as we can partially do, can not fail to throw light on the origin of the disease and help in its preventing.

The frequency and severity of diabetes in some parts of India and Ceylon can not but suggest the influence of an opposite climate in its ameliorations. I am told that among the meat-eating Parsees of India both diabetes and gout present a frequency which transcends anything of which we have experience in this country. If the climate of India promotes these conditions, what will be the effect upon them of that of the north of Europe or of America? If scorbutic affections are invited by cold, presumably by way of tissue waste and oxidations, what will be the result of the same agency upon the uric-acid diathesis, gout, and the disorders in which oxidation is wanting? It might be better to shudder in the frigid zone than to suffer arthritic tyranny in the temperate.

The infrequency of the granular kidney as originating in subtropical districts has already had its influence in the treatment of the disease. Short of such great changes as between zone and zone, even within the limits of these islands, more may be in our power than has yet been recognized. Between the Scilly Islands and Aberdeen are many varieties of hot and cold and moist and dry, many differences of water and of altitude. There is much phthisis in Scilly under warmth and moisture. Is this due to race, to intermarriage—as has been thought—or to location? Where within these islands does phthisis least prevail? Where is oxidation so keen that gout is burnt and purged away? Let us know what diseases are promoted and what are prohibited by the *genius loci;* let us take the great forces of external Nature into our confidence, and we shall be able to control disease by greater agencies than the druggist can supply.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for September 4th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.....	Aug. 29.	1,515,301	826	98	..	..	..	..	..	15	9	22	3	1
Chicago, Ill.....	Aug 29.	1,099,850	439	34	..	..	..	.	..	29	5	13	2	5
Philadelphia, Pa .	Aug. 22.	1,046.964	419	....	..	..		..	..	19	6	8	..	1
Brooklyn, N. Y......	Aug. 22.	806,343	353	30	..	..	..		..	5	3	9	1	2
St. Louis, Mo........	Aug. 29.	451,770	143	....	..	..	..	..	..	..	1	3	..	...
Boston, Mass	Aug. 29.	448,477	203	23	..	..	..	..	..	7	1	2	..	2
Baltimore, Md... ...	Aug. 29.	434,439	167	12	.	..	..	1	..	3	..	3	..	....
San Francisco, Cal...	Aug. 22	298,997	109	14	..	..	..		..	2	..	1	..	....
Cincinnati, Ohio.....	Aug. 28.	296,908	85	18	..	..	.	..	..	..	2	..	..	....
Washington, D. C....	Aug. 22.	230,392	97	13	..	.	..	..	..	8	1	4	..	3
Detroit, Mich........	Aug. 22.	205.876	102	....	..	..	..	..	..	..	1	5	..	....
Milwaukee, Wis......	Aug. 29.	204,468	97	6	..	..	..	..	..	1	1	5	..	2
Minneapolis, Minn...	Aug. 29.	164,738	27	....	..	..	..	..	..	1	..	..	..	....
Louisville, Ky	Aug. 22.	161,129	58	7	..	..	..	..	..	3	1	1	..	....
Louisville, Ky	Aug. 29.	161,129	66	7	..	..	..	..	..	3	..	..	..	....
Rochester, N. Y......	Aug. 29.	133,896	60	....	..	.	..	..	..	..	..	..	..	....
Toledo, Ohio.........	Aug. 28.	81,434	....	....	..	..	..	..	..	1	..	1	..	1
Nashville, Tenn ...	Aug. 22.	76,168	41	....	..	..	..	..	..	2	..	..	..	....
Nashville, Tenn	Aug. 29.	76,168	30	....	..	..	..	..	..	1	..	..	..	....
Erie, Pa	Aug. 29.	40,634	18	....	..	..	..	..	..	..	..	..	..	....
Portland, Me.........	Aug. 29.	36.425	15	....	..	..	..	..	..	..	..	..	1	....
Binghamton, N. Y...	Aug. 29.	35,005	5	2	..	..	..	..	..	..	..	..	..	....
Yonkers, N. Y.......	Aug. 29.	32,033	7	1	..	..	..	..	..	..	1	..	..	....
Mobile, Ala...... ...	Aug. 29.	31,076	12	4	..	..	..	..	..	..	..	..	..	....
Galveston, Texas....	Aug. 14.	29,084	11	....	..	..	..	..	.	..	..	..	..	....
Galveston, Texas....	Aug. 21.	29,084	14	....	..	..	..	..	..	..	..	..	.	....
Auburn, N. Y........	Aug. 29.	25,858	7	1	..	..	..	..	..	..	..	..	..	....
San Diego, Cal.......	Aug. 22.	16,159	1	....	..	..	..	..	..	..	..	..	..	....
Rock Island, Ill......	Aug. 23.	13,634	2	. ..	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.......	Aug. 22.	11,750	6	....	..	..	..	..	..	1	..	..	..	....

Discussion on the Mode of preventing the Spread of Epidemic Disease from one Country to Another.—At the Seventh International Congress of Hygiene and Demography, as reported in the *British Medical Journal*, Surgeon-General J. M. Cuningham, C. S. I., after referring to the ambiguity attaching to the word epidemic, said that there were three modes of preventing the spread of epidemic disease from one country to another. The first method, that of quarantine, was of two kinds, land and sea. Land quarantine, although occasionally resorted to, had proved impracticable. Sea quarantine had done no good. There were no cases where an exemption from cholera had been proved as due to quarantine. Quarantine was a tyranny obstructing commerce and interfering with personal liberty. The second method, medical inspection, consisted in the medical inspection of every ship arriving in port, action being taken on the presence of illness. If infectious illness were present, isolation and disinfection were to be resorted to. This method was a great benefit to the sick, but could not be credited with preventing epidemics of cholera. The third method was the only method for preventing the spread of epidemic disease from one country to another. It consisted in the enforcement of sanitary improvement—that is, the better drainage of towns and the better water supply, food supply, etc., of a people.

Inspector-General Robert Lawson said that to draw up a plan to prevent the extension of a disease—say cholera—from one country to another, with any prospect of success, it was necessary to have at least a general acquaintance with the different factors which contributed to the result, and with their mode of operation. The existing information on these points fell far short of these requirements, and its increase had been enormously impeded by the belief that man himself was the chief agent in diffusing the disease, and by interpreting the evidence obtained from various sources with an undue bias in favor of the theory. There had been, in short, and still remained, a most serious error in assuming that personal communication was the principal factor; and a no less extensive error in the methods and reasoning by which the central idea of diffusion by man was advocated. There was need for a complete change in all these respects; the character and causes of cholera must be derived from a critical examination of all the evidence Nature presented, and from a study of the methods she herself adopted instead of from *a priori* deductions. Cholera occurred in two different forms—simple cholera or cholera nostras, of little severity, and attributed to local causes; and Asiatic epidemic or malignant cholera, always a serious disease, and by many attributed to a poison given off by those laboring under it, and so diffused until it became epidemic. Since 1832, when cholera visited Europe in the epidemic form, cholera nostras had been observed to fluctuate every few years, and with the milder cases occurred a certain number presenting all the characters of the malignant disease; these cases occurred singly or in small groups, but in every instance they accompanied epidemics of varying severity at no very great distance off, and were under the same "epidemic influence." Those who supported the theory that man diffused cholera were necessarily required to shew that persons suffering from the disease must arrive at points where it had not yet appeared before it commenced in these latter, and that the first attacks in the new locality had been in persons exposed to the imported cases; but there were now a good many instances of epidemics springing up in localities at a distance from where the disease was already prevailing, and without any trace of importation, and where those first attacked had resided in the country for many months in succession without communication with any previous case. Such were the outbreaks at Southampton in 1865, and New Orleans in 1873, and at Toulon and South of France in 1884, all of which were most carefully investigated on the spot. The only other conclusion open was that the necessary factors were supplied by epidemic influence, and if supplied in one instance, supplied in all; where there appeared to have been importation at the commencement of the outbreak it must not be assumed that the disease was communicated by man, unless the epidemic influence could be excluded, as at present it could not. It seemed probable that the exciting factors were conveyed by the air, whether fully or only partially developed, and consequently it was not in our power to exclude them; but much might be done by hygienic and other local means to limit their development in the localities they reached, and so to avoid excessive mortality.

Dr. Ashburton Thompson, Chief Medical Inspector, Board of Health, New South Wales, described the work of the Australasian Sanitary Conference which met in Sydney in 1884. He maintained that medical inspection, while exactly suited to the local conditions in England, was not necessarily suitable to other countries. The degree of protection which quarantine could afford varied inversely with the ease of communication between the infected country and the country to be defended. It could only yield a protection commensurate with its cost in countries where internal sanitation was good. The function of quarantine was not to exclude infection, but to lessen the number of sources of infection entering the country. In Australasia limited quarantine was advisedly used against ships carrying cases of exotic disease. The vessel was cleansed and delivered to owners at the earliest possible date, but the ship's company was detained in isolation for periods beyond the incubation periods; in the case of scarlatina and other like infectious diseases, where the conditions ashore resembled those in England, medical inspection was used. The patients were removed to isolation hospitals, their quarters cleansed, and the ship discharged, after, usually, five or six hours' detention. These principles were rigidly adhered to in New South Wales.

Dr. Rochard (Paris) said that the means of preventing the transmission of epidemic diseases from one country to another were three: (1) Isolation, (2) disinfection, (3) sanitation. The first was simplest, and the most radical. It was also the most difficult to use, because the intervention of public enactments and an *entente internationale* were necessary. It was the system of quarantine and of sanitary cordons. The second was more modern, and was the result of the development of contemporary science. The third rested on the progress of urban hygiene. It was probable that if all towns were in a thoroughly sanitary condition we might brave epidemics. England had spent five millions since the commencement of the century, and it therefore did not fear the cholera during the last epidemic. He thought, however, that some of England's resistance to the cholera should be ascribed to its great distance from the source of cholera. M. Rochard next proceeded to submit the measures taken at the frontier by the French authorities during the last cholera epidemic, and he concluded by expressing the belief that it was necessary to persevere in the employment of those measures which responded to the necessities of the moment and to our present knowledge.

Dr. Felkin said that a method of inoculation for syphilis was in use among Central African tribes, and had resulted in the virtual stamping out of syphilis among the tribes.

Dr. Simpson (Calcutta) said that India had three populations—the Hindus, the Mohammedans, and the Europeans. The Europeans who traveled were not very subject to cholera; the Hindus, who were immensely subject to cholera, did not travel at all, because they would lose their caste. The Mohammedans were the real danger, and Mecca or Medina might be looked upon as a permanent threat to European security.

Dr. Hewitt (Minnesota) urged the necessity for an international organization for mutual notification among health authorities.

Professor Brouardel criticised the arrangements at Malta and Gibraltar; and Sir Joseph Fayrer admitted that nothing could be said in their defense.

Professor Stokvis (Amsterdam) praised the sanitary measures of the English Government in India. The discussion was continued by Surgeon-General Cook, Dr. Robert Grieve (British Guiana), Dr. Ruijsch (The Hague), and Surgeons-General Staples, Beatson, Ewart, and Cayley; and Surgeon-General Cuningham replied.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

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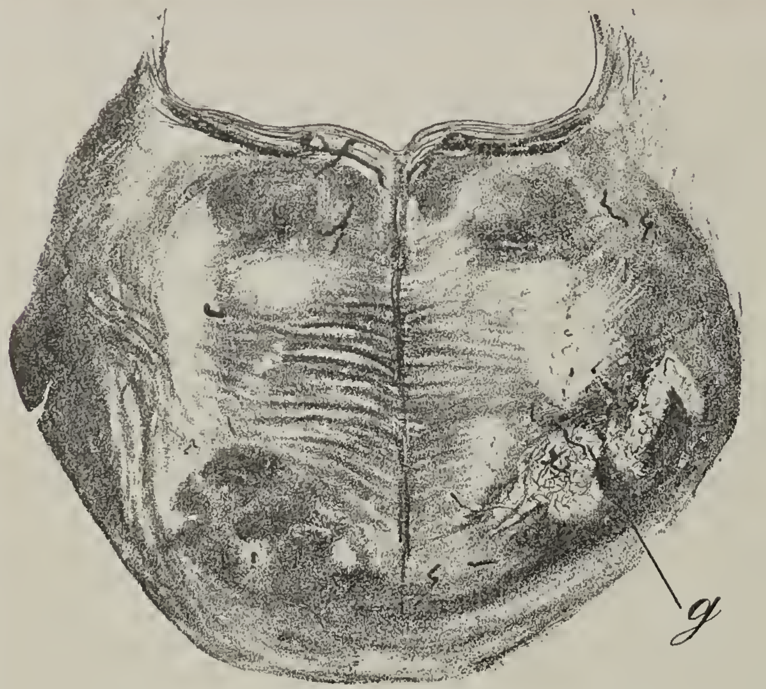

Fig. I.—Section through pons, showing gummatous infiltration (*g*) of ventral portion. Specimen stained with Weigert's hæmatoxylin. Low power.

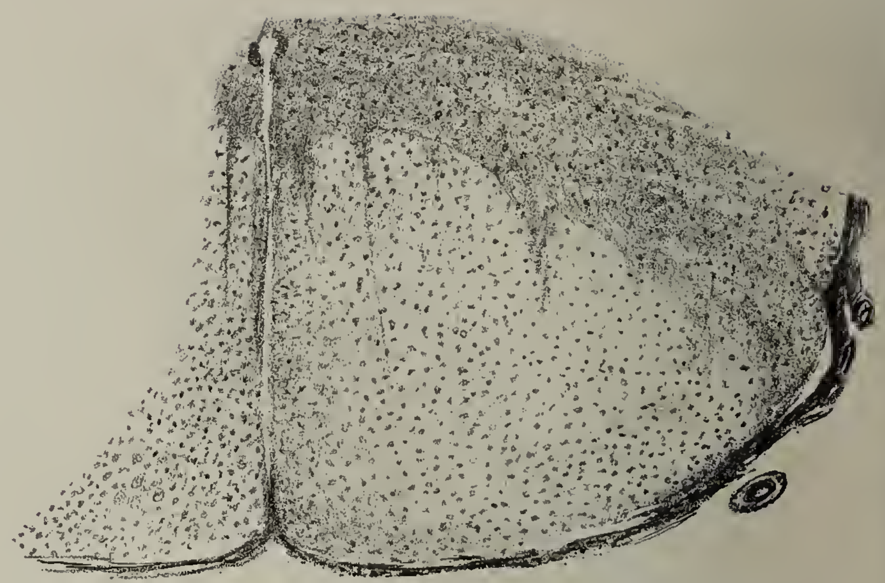

Fig. II.—Ventral portion of medulla, showing thickening of pia and small-celled infiltration of substance of medulla; also thickened blood-vessels. Specimen stained in picrocarmin. Low power.

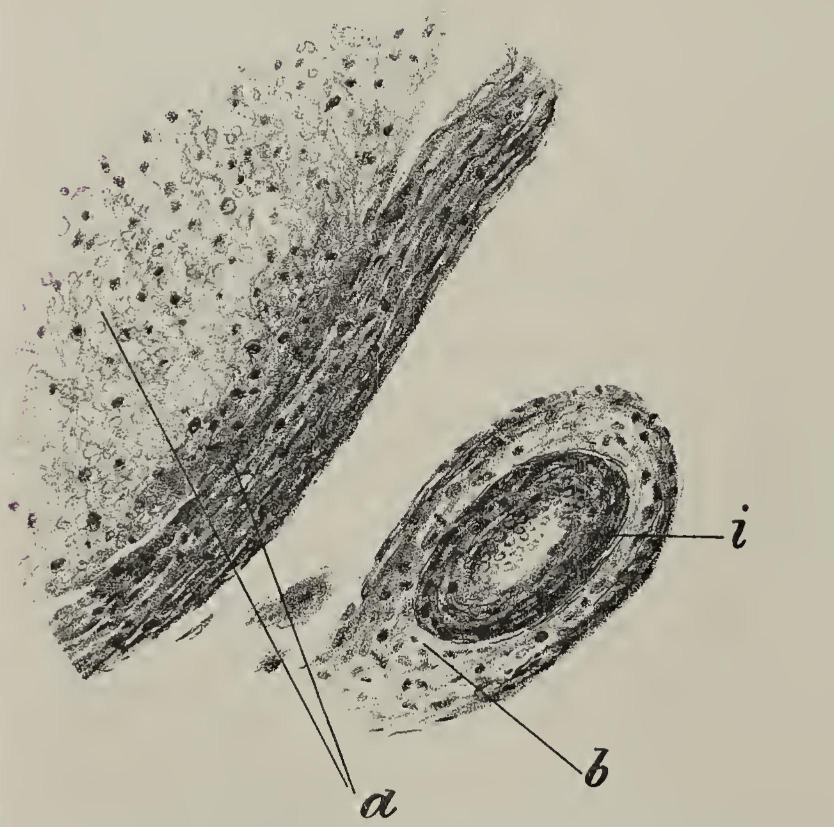

Fig. III.—Portion of the same more highly magnified, showing infiltration of pia and of substance of medulla (*a*) and typical syphilitic endarteritis; marked thickening of and cellular proliferation in intima (*i*); narrowing of the lumen; the membrana elastica not visible; cellular infiltration of adventitia (*b*) also.

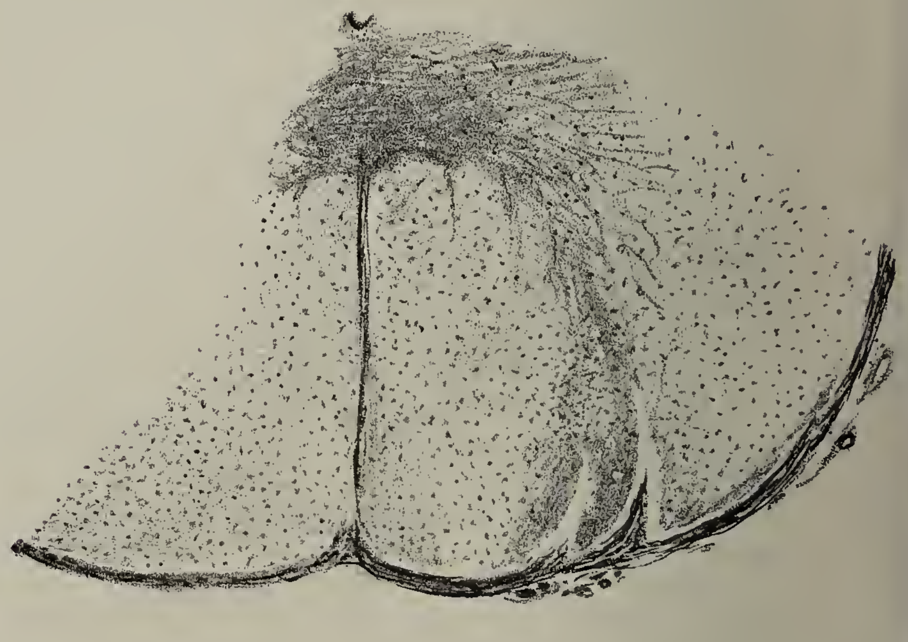

Fig. IV.—Section through dorsal cord (ventral portion), showing leptomeningitis specifica and infiltration of substance of the cord. Low power as above.

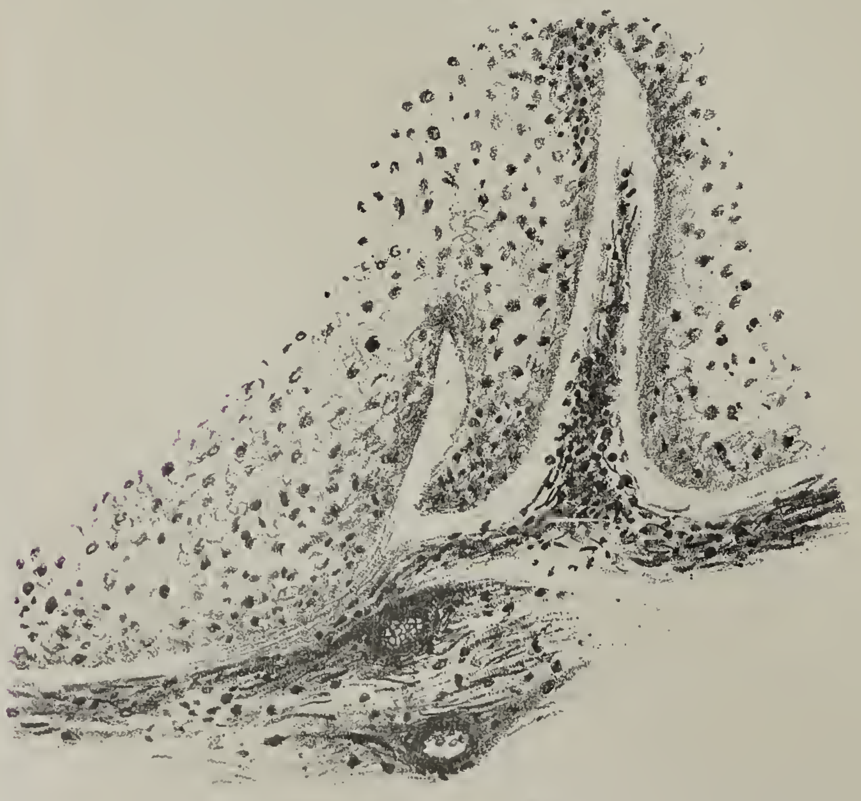

Fig. V.—A portion of the same more highly magnified; very marked thickening of pia; cellular infiltration seen best in that portion of the pia which projects inward; infiltration of substance of cord.

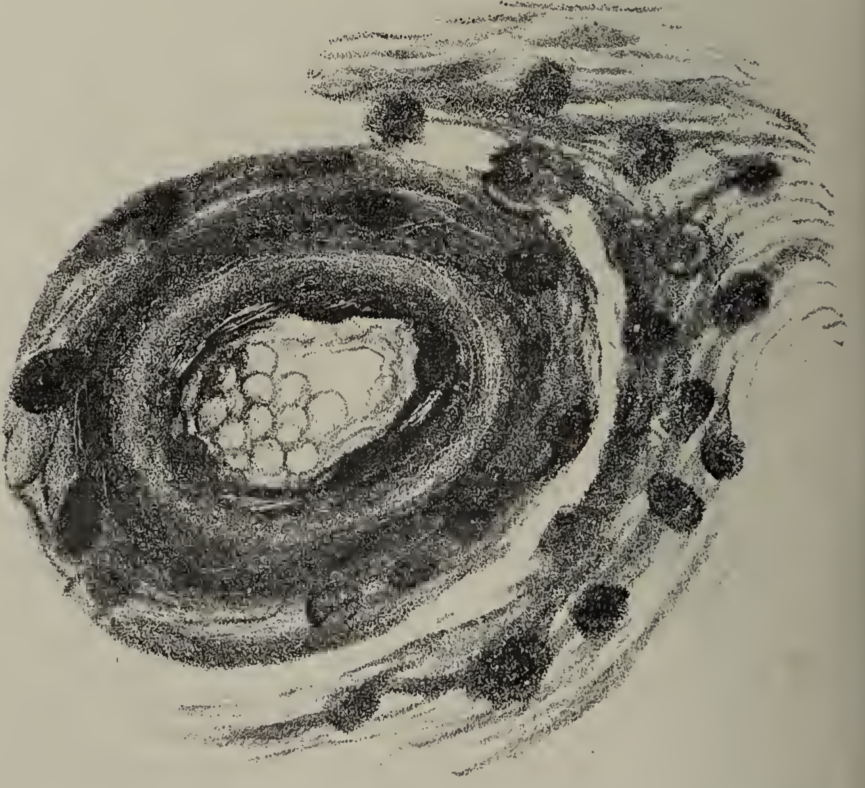

Fig. VI.—A portion of an artery under high magnifying power to show thickening of its walls and almost complete occlusion of the vessel by blood-clot; also cellular infiltration of surrounding tissue.

THE NEW YORK MEDICAL JOURNAL, SEPTEMBER 19, 1891.

Original Communications.

MULTIPLE CEREBRO-SPINAL SYPHILIS.[*]

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Many years ago I heard Hughlings Jackson say at the bedside of a patient suffering from spinal disease: "If the symptoms are irregular, unilateral, when you would expect them to be bilateral, and if they do not answer to any well-known type of spinal disease, you may safely call it syphilis." I will not make Dr. Jackson responsible for this quotation from memory, but the opinion expressed therein has been held by him and many others. The most heterogeneous symptoms were supposed to point to syphilitic diseases of the central nervous system, while certain definite combinations of symptoms of frequent occurrence were not properly recognized as pointing to *multiple cerebro-spinal syphilis.* This is a convenient term for the class of cases I am about to refer to, and if the name suggests multiple cerebro-spinal sclerosis so much the better, for the clinical resemblance is often so great as to require most careful distinction.

In past years the difficulty lay not in deficient clinical studies, but, above all, in our ignorance of the morbid lesions. The researches of Virchow,[†] Heubner,[‡] Greiff,[#] Rumpf,[‖] Siemerling,[△] and Oppenheim[◊] have materially advanced the knowledge of cerebro-spinal syphilis, and this advance has resulted in showing that there are a few morbid processes due to syphilis which will readily explain the symptoms of many cases of cerebro-spinal disease.

It is a matter of common knowledge that the syphilitic contagion is apt to lead to a degeneration of the arteries, and that this degeneration may result in all the accidents which are brought on by disease of the blood-vessels due to other causes; hence we have hemiplegia, crossed paralyses, and what not, due to syphilis. If syphilis results in the formation of gumma, we are apt to have the same symptoms as would be produced by any other neoplasm in the same region; but it is not so well known that syphilis often leads to a very widespread gummatous infiltration of the cerebral and spinal meninges which may remain restricted to the meninges or else insinuate itself into the substance of the brain and spinal cord. This infiltration may start at any point of the central nervous system, at the base of the brain or over the convexity, in the cervical or the lumbar portions of the cord, or it may even affect simultaneously the brain as well as the cord. We may therefore have a mere cerebro-spinal meningitis luetica, a specific meningo-myelitis, or a meningo-encephalitis, and with these processes we may have one or more special gummatous deposits.

Rumpf, in his thorough and interesting monograph, has insisted most strongly that granulation tissue is characteristic of the luetic process, and yet he, as well as others, must acknowledge that this same granulation tissue occurs in tuberculous organs and in the skin or other organs of persons suffering from lupus or leprosy. The region in which this granulation tissue occurs will often be the only point of differential diagnosis. Tuberculous deposits, moreover, tend rather to caseation, while syphilitic products are apt to undergo retrogressive metamorphosis. We shall have no absolute method of differentiation until the researches so earnestly begun by Klebs,[*] Disse and Taguchi,[†] Rumpf, Doutrelepont,[‡] and Lustgarten[#] shall enable us to point to the bacilli of syphilis as confidently as we do to the bacilli of Koch in tuberculous deposits. In syphilitic disease of the nervous system the difficulties of finding the bacilli appear to be even greater than in the syphilitic products in other organs.

Bacilli or no bacilli, there are cases such as the one to be reported later on in this paper in which there can be no manner of doubt as to the syphilitic nature of the morbid changes.

It is quite characteristic of syphilitic disease of the nervous system that this granulation tissue (granular proliferation) starts from the smallest capillaries, either from the capillaries of the connective tissue or from the capillaries (vasa nutrientia) of the larger blood-vessels. Whether the process really starts in the endothelium of the intima (as Heubner would have it) or in any other part of the blood-vessel walls, as I am inclined to think, is a matter of secondary importance. It is much more important that we should have knowledge of a single morbid process (or morbid tissue) which is characteristic of all syphilitic products, whether these be in a recent chancre, in the gummatous deposits of the liver, in the gummatous infiltration of the brain and spinal cord, or of the larger blood-vessels at the base of the brain. Whether or not the vast differences in the ultimate fate of tubercular or syphilitic products, in spite of their histological resemblance, is due to the differences in the life-history of the bacilli of tuberculosis and of syphilis, is a question for the bacteriologists to decide.

Leaving these minute differences aside, the gross appearances of syphilitic and tubercular disease of the brain and spinal cord are very different from one another. Oppenheim has laid special stress upon the gelatinous, hide-like (*gallertige, schwartige*) character of the specific thickening of the spinal and cerebral meninges; and, if this distinction is not sufficient, even barring the history of the case, the absence of the small tubercles, which almost invariably accompany a tubercular meningitis, will help to decide the question.

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[*] Read before the Neurological Section of the New York Academy of Medicine, April, 1891.

[†] *Arch. f. path. Anat. u. Physiol. u. f. klin. Med.*, i, xv; *Die krankhaften Geschwülste*, Bd. ii; and elsewhere.

[‡] *Die luetischen Erkrankungen der Hirnarterien*, Leipsic, 1874.

[#] *Arch. f. Psych.*, etc., xii.

[‖] *Die syphilitischen Erkrankungen des Nervensystems.*

[△] *Arch. f. Psych.*, xix, xx, xxii.

[◊] *Zur Kenntniss der syph. Erkrankungen des centralen Nervensystems*, Berlin, 1890; *Berl. klin. Woch.*, 1888, 1889.

[*] *Arch. f. exp. Pathol. u. Pharm.*, 1879.

[†] *Dtsch. med. Woch.*, 1885.

[‡] *Wiener med. Woch.*, 1884.

[#] *Verhandl. des Congresses f. innere Med.*, 1885.

It is the chief object of this paper to show that this widespread syphilitic infiltration of the meninges of the brain and spinal cord is not only *one* form in which cerebro-spinal syphilis is manifested, but that it may be said to be a frequent cerebro-spinal disease, the symptoms varying naturally enough according to the intensity of development of these morbid products at different levels of the central nervous system.

My friend Dr. Gray * refers to spinal lesions in a subject who has *had* intracranial syphilis, and has evidently had in mind such cases as are the special subject of this paper, without, however, going into any further details. Among recent writers, Oppenheim,† in a lecture remarkable for its lucid presentation of the subject, declares that syphilis is rarely restricted to the spinal cord, but that it generally presents the type of a cerebro-spinal disease. The evidence to be presented in this paper will leave no doubt as to the truth of this position.

Let me begin with the case in which the clinical diagnosis was verified by post-mortem evidence :

Case I.—R. K., a Lithuanian, aged thirty-seven years, married eighteen years, was an inmate of the Montefiore Home when I took charge of the service, in November, 1890. From a careful history taken for me by the house physician, Dr. Rosenthal, I learned that her father had died of phthisis fifteen years ago; her mother, five sisters, and one brother were all alive and well; her husband is also alive and said to be in good health; the patient has had two children—a girl, born seventeen years ago, who had some eruption when one year old, which lasted six months; this child died at the age of two years of croup; a son, aged fifteen years, is living and healthy.

As a child our patient enjoyed good health. At the age of sixteen years she had an eruption over her chest and abdomen, together with ulcers on her legs; no history of other specific symptoms could be obtained. Her first child was born in the second year after marriage; there were no miscarriages or stillbirths at any time. Patient has been in this country six years. Her husband came to this country eight years previously—say, five years after their marriage. During the term of separation from her husband she was living in Moscow, where she passed through an acute febrile affection, probably typhoid. After coming to this country, six years ago, she began to complain of pains in different parts of the body, more particularly in clavicle and shoulder, also over the liver. There was no swelling as far as she remembers, but she remembers having ulcers on both legs at that time; as soon as one healed another would develop, and so on for four or five months; she had some affection of the throat lasting about two months. During the summer of 1889 she suffered from headaches and vertigo, fell frequently on the street, but claims never to have lost consciousness. Her mental condition was normal, but she was much distracted by pains and increasing weakness in her legs. In February and March, 1890, she had true projectile vomiting. In April, 1890, she became bedridden and was sent to Mount Sinai Hospital, where she remained seven weeks and was subjected to antisyphilitic treatment. Her symptoms at that time consisted of headache, vertigo, absolute paraplegia of lower extremities, marked hiccough, obstinate constipation, and retention of urine; catheter was used. In addition, she had photophobia and difficulty of speech; mental condition was normal. Sight and speech disturbances disappeared after fourteen days. When dismissed from hospital (after seven weeks), was much improved. For three weeks remained comparatively well; then the headaches returned and she fell repeatedly, probably in consequence of weakness of legs, became constipated, but bladder remained normal. In September developed ptosis of the left eye and severe pain over left half of head. In October developed a paralysis of left arm and hand, and, after a few days, paralysis of both lower extremities; became confused in mind and almost demented; mental condition was characterized also by severe depression; developed incontinence of urine and fæces. In this condition was brought to the Montefiore Home late in October, 1890. The house physician reports that he found left ptosis, spastic paraplegia, atrophy of both halves of tongue, and exaggerated reflexes. I first saw her November 4th, three days before death; she was semi-comatose, but I could make out left ptosis and complete ophthalmoplegia externa and interna of left side, partial on right side. Spastic paraplegia of upper and lower extremities, with contractures and increased reflexes, more marked on left side than on right. Tongue was atrophied. Sensory examination could not be made owing to semi-comatose condition, nor could facial paralysis be accurately made out; there was, however, no distortion of face. The coma deepened, respiration became irregular, and patient died November 7, 1890.

I made the diagnosis of syphilitic disease of the central nervous system (meningeal infiltration), with special deposits at the base of the brain.

The autopsy was done late at night within twelve hours after death. The skull and spinal canal only were opened. The calvarium was thin and in one or two places almost transparent. The dura was not adherent to the brain; the pia over the convexity was congested but not adherent to any part of the cortex, nor were any gross changes noticeable until the brain had been removed. At the base the great thickening, almost leather-like, of the pia in the interpeduncular space was very evident; the optic nerves were very much swollen, while all the other nerves appeared thinner than normal and tightly constricted by the thickened pia; the pia could not be removed from any part of the crura, pons, or medulla without injuring these parts. Through the pia the gummatous lesion in the right half of the pons could be detected; this had evidently extended also into the left half. On sections through the pons these changes can be best studied. The spinal dura was found very much thickened; otherwise the gross appearances were normal, except that at various points the areas of degeneration were most distinctly marked, and it was plain to the naked eye that the ordinary limits of degeneration were not respected. In Fig. 7 it will be seen that a very large area is diseased. Microscopically, it was evident that the syphilitic infiltration had insinuated itself as far as the area of secondary degeneration. The brain and cord were hardened *in toto* in bichromate-of-potassium solution of increasing strength, and later on in alcohol. Sections have been made through cortex, the ganglia, the pons, the medulla and, at

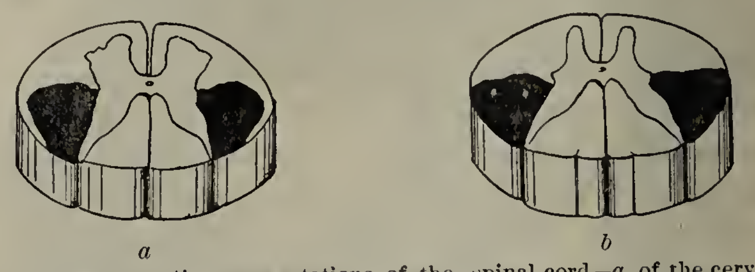
a b

Fig. 7.—Diagrammatic representations of the spinal cord—*a*, of the cervical cord; *b*, of the dorsal cord. The black areas denote the extension of disease beyond the pyramidal tracts of the lateral columns.

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* Syphilis of the Nervous System and its Treatment. *Med. News*, July 9, 1887.

† Published by Hirschwald, Berlin, 1890, p. 23.

various levels of the cord. A very careful examination was also made of the vertebral and basilar arteries.

Microscopical Examination.—The vertebral and basilar arteries showed typical syphilitic arteritis. In all specimens the lumen was very much narrowed by a small-celled proliferation of the walls; in some the intima was the part most affected, but in other specimens, and often in different parts of the same section, the intima had been but little encroached upon, while the membrana elastica was lost in the mass of granulation tissue and the adventitia was much thickened, showing cellular proliferation. Sections through the cortex, ganglia, and quadrigeminal region did not present any morbid changes in the brain substance.

In the pons, on sections stained with picrocarmin and according to Weigert's hæmatoxylin method, the lesion destroying the right pyramidal tract, and invading the left, was made evident (Fig. 1).

This area is marked by a typical infiltration which has led to disintegration of the fibers and of the neuroglia; on several sections much of this detritus has fallen out, leaving gaps in the section; the pontine pia is everywhere adherent and infiltrated; the blood-vessels show specific alteration of their muscular coats, the intima being very much increased and the lumina of the vessels being partially or wholly occluded by clots. In the medulla and throughout the spinal cord as low down as the middle lumbar region we find degeneration of both lateral columns and both anterior columns, the degeneration of the latter, however, not passing below the lower dorsal. But at all levels of the brain and spinal cord below the pons typical syphilitic changes can be made out; adherence of the pia to the substance of the pons, medulla, and cord, with here and there special gummatous infiltration into the substance of the cord; this is specially marked on sections through the medulla (Fig. 3), and the middorsal and midlumbar segments (Figs. 4 and 5). The posterior columns are free. The pia is thickened throughout by marked round-celled infiltration, and the blood-vessels are often infiltrated, thickened, and filled with blood-clots. The pathological diagnosis reads meningitis luetica cerebro-spinalis; and it is worth while noting, in contrast with the findings of Oppenheim, that in this case the dura had suffered but little, while the changes were much more marked in the pia throughout its entire length; we might, therefore, go but little astray if we made the diagnosis of lepto-meningitis luetica cerebro-spinalis.

On superficial examination one might have supposed this to be a case of gummatous infiltration of the pons with the ordinary secondary degenerations, whereas it is in reality a very widespread specific meningitis with special deposits and gummatous infiltration in the pons and elsewhere.

Let me repeat that the microscopical examination substantiated what was seen on gross inspection—namely, that at various levels of the cord the infiltration starting from the pia worked its way inward toward the area of degeneration in the pyramidal tracts of the lateral columns, thus destroying every trace of normal structure from the gray matter toward the periphery. The gray matter throughout the cord was entirely normal. That this is the more common occurrence would appear true from the preponderance of spastic symptoms in cases reported by others as well as in my own. This syphilitic invasion would seem to attack the lateral columns most frequently; the posterior columns come next in order, and the gray matter last of all, and perhaps only in those cases in which the meningo-myelitis spreads with great rapidity.

The pathological conditions described above tally well with the clinical history of this case: A married woman who has exhibited undoubted manifestations of syphilis at different periods in her life is stricken down with headaches, vomiting, and vertigo. Motor symptoms are soon developed, resulting in a complete paraplegia of the lower extremities. From this she recovers to such an extent that she is able to walk about and to leave the hospital. After a few weeks general symptoms again appear: headache, vertigo, vomiting, and mental dullness; also spastic paralysis of the upper and lower extremities, paralysis of various cranial nerves, and interference with the rectal and vesical reflexes, until coma and death put an end to her sufferings. The special features of this history are:

1. A spastic paralysis of the cerebro-spinal type.
2. Recovery from this attack.
3. A second attack of spastic paralysis of upper and lower extremities with cranial nerve involvement.

Comparing the history of this case with the pathological findings, we infer that there was at first a general specific process affecting simultaneously the brain and spinal cord; by antisyphilitic treatment or spontaneously the specific process was recovered from; then the process takes a fresh start and finally results in special deposits in the pons and cord.

I have reason to think that this cerebro-spinal disease due to syphilis is not infrequent; that it can be recognized during life as such, and that these cases are frequent enough to demand special recognition. A number of clinical histories at my command will help to enforce these points, and without anticipating an important point of differential diagnosis, the remissions and recovery, the latter, if not the former, will aid us in differentiating this form of cerebro-spinal disease from two other conditions with which it might be confounded—namely, tubercular disease of the central nervous system, and multiple cerebro-spinal sclerosis.

The following case presented an unusually instructive history:

Case II.—W. K., a saloon-keeper, single, a heavy-set man of forty odd years, came to the Polyclinic in the autumn of 1888. He confessed to syphilitic infection with secondary skin and throat symptoms a few years previously. About a year before his first visit he had noticed a heaviness in the tongue and a numbness of left hand; soon the left hand grew weaker, speech became more and more difficult, deglutition was interfered with, and by degrees the left leg grew weaker. It was only by the greatest effort that he was able to drag his heavy body to the clinic. On examination, his symptoms were a very marked atrophy of left half of tongue, and to a slighter degree of right half; fibrillary twitchings about equal in both halves; complete reaction of degeneration with altered galv. response in left half of tongue; in right half far. response was extremely weak, but galv. response was not altered. There was no symptom indicating involvement of any other cranial nerve as determined by careful testing. Jaw clonus was present; we also noted the exaggeration of both wrist reflexes, triceps reflexes, and both knee-jerks, reaction of degeneration, and also double ankle clonus. No sensory impairment. At this time the greater involvement of the hypoglossal nerve on the same side as the greater hemiparesis was a little puzzling. The diagnosis was made of syphilitic disease in the region of the medulla, and the patient was placed on large doses of the iodides. The symptoms soon grew worse, the right arm and right leg becoming as paretic as those of the left side. The patient's helpless condition necessitated his being put into the Polyclinic Hospital. Here the mercurial and iodide treatment was pushed to the extreme, the patient receiving fully four hundred and fifty grains of the iodides and a drachm of mercurial ointment *per diem.* After two weeks the symptoms began to recede; the right arm and leg improved to such an extent that the patient appeared to have a left hemiplegia with bulbar symptoms; but in the course of another year the hemiplegia was practically reduced to a paretic condition of the left arm, and even the bulbar symptoms disappeared in an astonishing fashion. One day, intending to demonstrate the reaction of degeneration before the students on the tongue of this patient, I was surprised to find the far. response present, and at later examinations there was nothing but a slight sluggishness of galvanic contractility to remind me of the former reaction of degeneration; the atrophy was also less marked. The patient remained in about this same condition; slight relapses would occur every now and then which were counteracted or checked by an increase in the administration of the iodides. He was doing extremely well, for months visited the clinics regularly, by request exhibited himself at other institutions, and nothing but the paretic condition of the left arm and a limp with the left leg reminded one of his old and serious trouble. In March of this year he was seized with pneumonia, which ended fatally after a few days.

Unfortunately, we were not able to obtain an autopsy; but, from the entire history, the gradual development, first one side and then another being attacked, the remissions, and the almost complete recovery, not to mention the distinct specific history, there can be no doubt as to the diagnosis.

The symptoms, bilateral but unequal, hypoglossal involvement, spastic paresis of both upper and lower extremities, and the marked remissions tending toward recovery, pointed to multiple foci of disease at the base of the brain, and probably in the cord also. A syphilitic endarteritis of the basilar artery with thrombosis is a possibility, but I doubt whether under those conditions the recovery would have been as complete as in this case, particularly if the softening in a given case had lasted as long as the paralysis did in this case. The resemblance between this case and our first case with autopsy is so great that the morbid processes were in all probability identical.

Another case, very similar to the preceding one, is still under my observation.

Case III.—M. F., a railroad employee, aged thirty-three years, single, was always well, with the exception of malaria and syphilitic infection eighteen years ago, when almost a boy. Two years ago noticed a feebleness of the right leg, striking his toe frequently and falling. Five months later noticed the same in the left leg; could barely walk, but was able to stand without any special fatigue; pricking sensations in feet, which extended subsequently to the hands. Arms also grew weaker; intermittent œdema of hands; slight dysarthria. On examination, we found spastic paraplegia of upper and lower extremities, greater in the latter; increase of all deep reflexes, including jaw-jerk; no objective sensory disturbances; no hemianopsia; no interference with any of the special senses; no intention tremor; both halves of tongue atrophied, and distinct fibrillary tremor. No faradaic response on the part of the tongue; galvanic response normal. Under extreme iodide treatment the hypoglossal symptoms have receded (speech less difficult, atrophy less marked, electrical reactions not improved), but the spastic paraplegia has remained.

In this case the persistent spastic symptoms can not well be attributed to secondary degenerations following a lesion of the medulla. I doubt whether any serious invasion into the medullar has taken place; it is more rational to suppose a widespread specific meningitis which had affected the spinal cord and medulla about equally.

The following case will serve to show that a case of basilar disease of syphilitic origin can be distinguished from cases of widespread meningitis cerebro-spinalis luetica:

Case IV.—In November, 1888, J. C., aged twenty-six years, referred to me by Dr. Wyeth, was examined at his home. He acknowledged having been a heavy drinker and smoker; masturbation was indulged in in former years. Symptoms of constitutional syphilis had appeared a few years previously. Two weeks before I saw him, while walking home, his legs suddenly gave out, and he could scarcely reach home. The next morning, feeling strong again, he attempted to walk; did well enough in the morning, but in the afternoon the legs became worse; he was not able to cross the gutter, and found that he could not articulate distinctly; he states positively that there never was even a momentary loss of consciousness, and that he never lost entire control of either leg. On examination, I found both hands weak and both legs paretic; back muscles evidently involved, for it was utterly impossible for him to rise from the bed, but, when once on his feet, could stand and move about after a fashion. Arm and wrist reflexes, and also knee-jerks, were increased; ankle clonus on both sides. No sensory disturbances of any sort in any part of body. The left facial nerve was distinctly paralyzed in all its branches, and exhibited marked reaction of degeneration; there was increased galvanic response of muscles, with entire loss of faradaic response; but right facial was entirely normal. Being convinced of the syphilitic nature of this process, he was treated accordingly. The recovery set in gradually; the legs recovered first, but the arms remained paretic for many months, and interfered with his work as telegraph operator. When last examined, the facial nerve had entirely recovered. This patient became entirely well.

The case is different from those of typical multiple cerebro-spinal syphilis. The suddenness of the onset would point with much greater probability to thrombosis and softening in the pons.

In the following case, however, the vagaries of multiple cerebro-spinal syphilis are well illustrated:

Case V.—A year ago (April, 1890) I was asked to see D. S., a young man, thirty-one years of age, single, who had led a very eventful life; had been a heavy drinker, and had acquired syphilis, for which he had been treated. Three years ago became acutely demented, and was taken to Bloomingdale Asylum, where he was entered as a case of general paresis. After a stay of eighteen months, had sufficiently improved to be allowed to leave the asylum. I saw the young man about nine months later, when he told me that while in the asylum he began to notice a great difficulty in walking. On examination, I found spastic paraplegia of lower extremities, no marked involvement of upper extremities, great increase of reflexes in all four extremities, very marked and constant tremor of the hands (not merely intention tremor), marked facial tremor, and a peculiar speech disturbance, which reminded one in part of general paresis, and was something akin to the scanning speech of multiple cerebro-spinal sclerosis, yet different from both. I was willing at one time to consider the case a multiple cerebro-spinal sclerosis (nystagmus was absent, however), until a very marked remission occurred, during which the mental symptoms cleared up entirely, and the patient began to read and write, as of old, with absolute correctness; he spoke intelligently of all things, and his spastic paraplegia made considerable improvement under antisyphilitic treatment. This remission was not destined to last very long, for after a few months the old symptoms returned in full force, speech became very heavy again, the spastic condition increased, the hands became tremulous, and marked hypochondriasis developed, which disappeared again.

The frequent changes of the symptoms in this case place it in the same category with the other cases reported. The behavior of the mental symptoms was not that of a case of general paresis, yet I am not astonished that this diagnosis was made by the asylum physicians. Nor is it customary for cases of multiple cerebro-spinal sclerosis to begin with a condition of acute dementia. In this case, moreover, the intention tremor, nystagmus, etc., were not present. I feel certain that we are justified in considering this case one of general syphilitic disease, including the variable mental symptoms of which Oppenheim speaks. While spastic symptoms would seem to be present in the majority of these cases, cases of flaccid paralysis with absence of reflexes do sometimes occur; yet the cases appear to be of undoubted syphilitic origin. The following is a case in point:

Case VI.—In April, 1890, I saw, in consultation with Dr. Robinson, Mr. L., a merchant, aged forty, who had married but a few years previously; had one healthy child; had syphilis. For some time before I saw him he had numbness and paræsthesia of all sorts in fingers of both hands.

A few weeks ago had occasional double vision; then began to notice a weakness in the legs which increased so rapidly that the patient could not walk at all, and for three days before I saw him was compelled to keep to his bed; has lost control over his bladder, has bulbar speech, but this dysarthria is said to have been worse than it was at time of first examination.

Examination.—Ptosis and paresis of the external rectus of the right eye; pupils do not react perceptibly to light or during accommodation; slight paresis of right facial; right hand weaker than left; both legs about equally paretic; motion of toes very limited; no knee-jerk and no wrist reflexes; some anæsthesia to touch below knees; pain sense also diminished; other sensory disturbances could not be tested for. The man appeared otherwise in fair health and, in spite of the severity of the symptoms, I hoped for an improvement in his condition under antisyphilitic treatment, but after a few days the man died quite suddenly, probably from interference with respiratory centers.

If you will assume in this case a specific myelo-meningitis with specific meningitis of the base, the difference of symptoms between this and the preceding cases will be readily understood.

There is no need of increasing these histories, although others are at my command. They all go to show that there is a special cerebro-spinal disease of syphilitic origin due to a specific cerebro-spinal meningitis; starting from the meninges, the process may invade the substance of the cord or the brain; in the majority of cases the lateral columns will be the first to be attacked, and spastic paralytic symptoms are the result; in those cases in which the gray matter of the cord is invaded by this destructive tissue the symptoms of a myelitis may be clearly developed. The posterior columns of the cord do not appear to be as frequently invaded as the lateral columns, yet Hoffman* and Dr. Kuh,† of Chicago, have described a case of specific meningitis of the spinal cord with sclerosis of the posterior columns simulating an ordinary type of tabes. A similar case has been published by Eisenlohr.‡ The base of the brain is also attacked more frequently than the convexity, but among the latter cases it is more likely that we shall find some of those cases of syphilitic dementia which it is often difficult to distinguish from typical general paresis. Before the disease develops into a widespread general affection (and this need not always be the case) it shows remarkable selective affinities. So it is most frequently localized in the interpeduncular space and its immediate vicinity. The sixth nerve and the fibers for the levator palpebrarum are most commonly affected. Inasmuch as the process starts from the pial sheath, the mere anatomical arrangement of the root fibers within the nerves may be sufficient to explain the more frequent involvement of certain sets of fibrils over others in the same nerve, or else different root fibers exhibit a varying degree of susceptibility to the contagion.

Some such explanation must be sought for some apparently nuclear ophthalmoplegias of which I have written in several papers,# which I believe to be of peripheral origin.‖ We have seen that these partial ophthalmoplegias sometimes constitute the entire trouble, in which case the lesion is a very limited one; and then, again, the occurrence of these ophthalmoplegias with spastic or flaccid paraplegia point to the relation of these symptoms to multiple cerebro-spinal syphilis.

The question arises whether this multiple form of syphilis is easily confounded with other chronic cerebro-spinal diseases.

Differential Diagnosis.—From multiple cerebro-spinal sclerosis this form of what I think we can safely call multiple cerebro-spinal syphilis can be distinguished by the absence of intention tremor, by the absence of nystagmus and of scanning speech, and, above all, by the frequent remissions in the course of the syphilitic affection. Yet this last point should be judged carefully, for remissions of weeks' duration have been known to occur in cases of multiple sclerosis, of general paresis, of malignant brain tumor, etc.

The proof of syphilitic contagion may be utilized to a certain extent against the diagnosis of multiple sclerosis, for it is generally agreed that in this disease syphilis is not the potent factor it is in so many other chronic affections of the central nervous system.

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* *Heidelberger Versamml.*, 1890.

† *Arch. f. Psych.*, xxii.

‡ *Festschrift zur Eröffnung d. Hamb. Krankenhaus.*

Disease of the Midbrain Region, *Am. Jour. of the Med. Sci.*, March, 1891; Polieneephalitis, etc., *Am. Jour. of the Med. Sci.*, Sept., 1889.

‖ I do not mean to dispute the occurrence of true nuclear disease in persons who have had syphilis.

From tubercular disease the syphilitic affection is distinguished by the much more rapid course of the former disease, and by the fact that the tubercular trouble is not so apt to lead to a widespread cerebro-spinal meningitis as to a limited basilar or spinal meningitis, with formation of one or more solitary tubercles. The previous history and general condition of the patient will often decide in favor of tuberculosis or syphilis, but in some instances this differential diagnosis may be difficult, particularly in cases in which there is good reason to suspect both diatheses.

Every one of us has, I think, seen cases in which he was doubtful whether the patient suffered from genuine tabes or from spinal syphilis. I have recently seen in private practice three cases in which the symptoms pointed to tabes; in the one case the knee-jerks returned after having been absent for some months; girdle sensations disappeared, and the man is well and has had no return of the symptoms for five years; in the second case all the symptoms of tabes were present, except that the knee-jerks were unequal for a time, then became equal, but have remained weak. In a third case, in which the clinical diagnosis of tabes was fully warranted, the one knee-jerk returned and the ocular paralysis (ptosis and abducens paralysis) disappeared as soon as the iodide treatment had been pushed to an extreme. A relapse of the symptoms was relieved in the same way. The case is still under observation. It is doubtful whether the effect of antisyphilitic treatment will be permanent.

Keeping in mind the nature of the syphilitic process, there is no reason why we should not have all the symptoms of disease of the posterior columns. If the meningeal infiltration in rare instances attacks the posterior roots and columns first, we have a clew to some of the cases of irregular tabes, and possibly to some of those beginning with paralysis of a single ocular muscle. Hoffman has found a typical sclerosis of the posterior columns together with a specific meningitis, and thinks the latter the cause of the sclerosis. Tabes and general paresis are clinical, not pathological, groups that will admit of further differentiation.

With regard to general paresis, the question may often be a puzzling one whether the case is a typical one or whether a syphilitic meningitis of the convexity is the chief trouble. For the present it will be well to call all those cases general paresis which conform strictly to the type, however strong the ætiological history of syphilis may be. It is only in cases of prolonged remissions or entire recovery and in such cases as I have detailed above in which the mental paresis disappears and a typical spastic paraplegia is developed that we may incline to the idea of syphilitic meningitis of the convexity and a cerebro-spinal meningitis rather than typical general paresis. The difficulties of this differential diagnosis are increased by the fact that we find cases of general paresis in young syphilitic subjects who will pass through unusual remissions, often lasting for months, and will then relapse and succumb to the disease, syphilis to the contrary notwithstanding.

The meningeal infiltration may at times be restricted to one particular level of the brain or cord, and it may thus happen that the syphilitic disease of which we have been treating may simulate tumor at that same level. In one case still under my observation the question of differential diagnosis between syphilis of the cervical cord and syringomyelia has arisen. Neither Professor Erb, who had seen the case, nor I have been able to be positive on this point. The sensory symptoms, all forms of sensation being equally disturbed in the upper extremities from the finger-tips to about the elbows, point to syphilis; but, with this exception, the symptoms might be those of a syringomyelia; the trophic symptoms, the muscular atrophy, the paralyses are very typical, the lower extremities up to the present time being entirely normal. The syphilitic disease, it must be remembered, starting from the pial covering, is very apt to affect the nerve roots before it affects the substance of the cord; it may be much more intense on one side than on the other, and in this way the entire asymmetry of the clinical symptoms may be readily explained.

In the case just mentioned the therapeutic test did not corroborate my suspicions, for there has been no real progress toward recovery. But, valuable as this therapeutic test is, if it have a favorable result, a negative result does not disprove the diagnosis. I have therefore to urge in all suspicious cases repeated trials of most vigorous antisyphilitic treatment, and where the iodides fail, let mercury be used, or both conjointly.

In the preceding discussion of this subject I have attempted to prove that there is a frequent combination of symptoms that can be recognized as a special form of disease—a multiple cerebro-spinal syphilis, due to a specific meningitis of the brain and cord, which is apt either to form special deposits in different parts of the central nervous system, or by proliferation to make inroads into the substance of brain or cord, or both; and that the association of cranial nerve affections with spinal symptoms, most frequently of a spastic type, in the presence of a distinct history of syphilitic contagion and of repeated remissions, gives strong evidence of this special form of disease. Syphilis of the central nervous system, far from being a vague disorder, is often characterized by a most definite series of symptoms.

A CASE OF ANTIPYRINE POISONING.

By R. L. WATKINS, M. D.

I relate the following case of antipyrine poisoning as it seems to me quite unique and indicates the recklessness of some of our less conscientious druggists:

The patient, a woman about thirty years of age, went to a drug-store and, complaining of a headache, asked the clerk for something to cure what he pronounced the grippe. He sold her a powder and told her to take half of it on her return home, and after waiting a half-hour to take the remainder. In about fifteen minutes after taking the first dose she became weak and fell on the sofa in a comatose condition. Her mouth, eyes, and nose were cyanotic, her pulse could not be felt, and her heart seemed to have ceased beating; in fact, for a short time she appeared dead. When she did come to, her prostration was intense and an eruption of white blotches resembling hives appeared on her body, only they were much larger, one blotch extending down the thigh to the knee. The after-effects persisted for two months, during which time she suffered from great weakness, palpitation, the occasional appearance of the eruption, and a peculiar weakness of the sterno-cleido-mastoid muscle. My treatment was simply with sherry wine, of which I ordered her to take a wineglassful at each meal. The analysis of the powder showed it to consist mostly of antipyrine. The weight of the remaining half was twenty-one grains.

320 West 145th Street.

SOME REMARKS UPON THE ÆTIOLOGY AND TREATMENT OF PHLYCTENULAR EYE TROUBLES.

By JOHN DUNN, M. D.,
RICHMOND, VA.

1. Lottie S., colored, aged fourteen. Adenoids of the naso-pharynx. Hypertrophy of inferior turbinates. Tonsillar hypertrophy. *Phlyctænulæ of the corneo-scleral junction.* Eczema of the ear and nose entrance. Discharge from the nostrils.

2. M. N., colored, aged nine. Adenoids of the naso-pharynx. Hypertrophy of the inferior turbinates. Tonsillar hypertrophy. *Phlyctænulæ of the corneo-scleral junction.* Discharge from the nostrils

3. Alice P., colored, aged twenty-one. Adenoids of the naso-pharynx. Hypertrophy of the inferior turbinates. Tonsillar hypertrophy. *Phlyctænulæ of the corneo-scleral junction*, O. S. Discharge from the nostrils. Catarrhal conjunctivitis, O. D.

4. William R., colored, aged twenty-four. Adenoids of the naso-pharynx. Hypertrophy of the inferior turbinates. Tonsillar hypertrophy. *Phlyctænulæ of the corneo-scleral junction and of the conjunctiva.* Eczema of the nose, ear, eyelids. Meibomian cyst. Discharge from the nostrils.

5. Ellen B., colored, aged four. Adenoids of the naso-pharynx. Hypertrophy of the inferior turbinates. Tonsillar hypertrophy. *Phlyctænulæ of the corneo-scleral junction.* Eczema of the nose and face. Blepharitis marginalis. Running nose.

Thus are entered upon the clinic of the Richmond Eye Infirmary five consecutive cases of phlyctenular ophthalmia. A much greater number of cases of this disease, with its associate nose and face troubles, might have been copied from this register; but these five cases are sufficient for the purposes of the following remarks, the objects of which will be to point out that the cause in all cases of phlyctenular eye inflammations is to be found in the nasal cavities, and that in the restoration of the nasal mucous membrane to a healthy condition lies the means, in all save very exceptional cases, of preventing the relapses which make this form of ophthalmia so annoying. The relation in which a diseased nose stands to many of the inflammatory conditions of the eye has often been pointed out in the articles of the journals, but that "the nose is the greatest enemy of the eye" has never been sufficiently insisted upon. The influence of nasal stenosis in early childhood upon the development of the eye, determining to some extent its state of refraction, has not received the attention it deserves, nor has there been given in the works on the eye the proper recognition to the relation of the nasal condition to certain inflammatory conditions of the ocular mucous covering. This is probably due to the fact that few of the great oculists who have been also authors of works on the eye have turned their attention closely to diseases of the nose, but have left to the rhinologist the subject of nasal catarrh and its meaning. Were the rhinologist who has turned his attention to eye troubles, if only so far as they have their origin in nose affections, to look into most of the great works on the eye to find confirmation of his views about certain eye conditions, he would be greatly disappointed; and justly so, for he would find that, though there have appeared in the journals excellent articles insisting that the nose should receive its due attention in many eye troubles, in these great works, or at least in the great majority of them, either the nose receives no mention at all, or, if it is mentioned, it is in such a manner that the student oculist does not have his attention drawn to the nose as the source of the troubles he is endeavoring to treat. In some of the hand-books on the eye where mention is made of nose troubles while describing an eye trouble, the nose and eye affections are spoken of rather as existing at the same time than as being the one the cause and the other the effect.

In looking over certain of the works at my disposal I find that in regard to the ætiology of phlyctenular ulcers there is at least a great deal of uncertainty. De Wecker * says that phlyctenular conjunctivitis is the most frequent of the inflammations of the eye and occurs especially in children; that it is scarcely more frequent in scrofulous than in non-scrofulous children; that one may mention as causes impure air, sojourn in damp rooms and in rooms little exposed to light, especially when the occupants are of a weak constitution; that it occurs most frequently in spring and autumn ("ce sont les époques où les enfants sont le plus exposés aux variations de température et à d'autres influences délétères"); that *phlyctenular conjunctivitis is the only form of conjunctivitis which is not inoculable, provided it has not changed its character and become transformed into catarrhal conjunctivitis.*† Edouard Meyer says: ‡ "Phlyctenular ophthalmia especially attacks children, both healthy and scrofulous. It may arise from any of the irritating influences which induce the other forms of conjunctivitis. The concurrent appearance, either before or after its commencement, of cutaneous eruptions of the eyelids or of the surrounding skin, such as eczema or zona, *seems to point to phlyctenular conjunctivitis as an exanthematous disease of the mucous membrane depending on the ciliary nerves. Hence it has been called conjunctival herpes.*" # Dr. Martin pays great attention to the frequency of astigmatism and considers the use of cylindrical glasses as calculated to prevent the relapses. M. Truc, in the *Montpellier méd.*, 16 février, 1891, says: "*L'ophthalmie phlycténulaire a pour cause générale le lymphatisme, pour cause locale une infection extérieure qui est, 9 fois sur 10, la malpropreté de la figure et des mains.*" Schmidt-Rimpler ‖ says: "Phlyctenular eye troubles occur especially in childhood. Scrofulous children furnish the largest proportion of the cases. Not infrequently is there an accompanying skin eruption. They are also consequent upon measles, scarlet fever, and small-pox. They occur less frequently in grown persons."

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* *Traité complet d'ophthalmologie*, tome i, pp. 344–345, 1880.

† These words are Italicized by me.—J. D.

‡ *A Practical Treatise on the Diseases of the Eye*, pp. 87–88

# Italics my own.—J. D.

‖ *Augenheilkunde und Ophthalmoskopie*, p. 401, 1888.

The views of other writers might be cited, but, so far as I know, they do not differ materially from those given above. Phlyctenular conjunctivitis is the most frequent of the inflammations of the eye, says De Wecker, and every oculist knows how persistent are the opacities left in the cornea when this part of the eye has been attacked by a phlyctænula, and, further, that the severer forms of phlyctenular ulceration may lead to perforation of the cornea, with its consequences, even to the destruction of the eye. There is another point in connection with phlyctenular eye inflammations, and that is their tendency to recur. These facts make it important that there should be discovered a cause more easily removable than "age," "damp, dark dwellings," "scrofula," "lymphatism," "want of cleanliness," etc. It is true that phlyctænulæ occur more frequently in children than in adults. This being so, then there must be something in childhood's conditions that makes the child more subject to this form of ophthalmia than old age is. This something, I am led to believe, and from much observation, is the tendency that exists in childhood to hypertrophy of the adenoid tissue in the naso-pharynx and its consequences, when assisted by the neglect that poverty or carelessness brings; but more of this further on.

Of the five cases above cited, in three the patients were less than twenty years of age, in two they were more than twenty; and the inference drawn from the cases that have presented themselves at the Richmond Eye Clinic is that the proportion of phlyctenular eye troubles occurring in persons over eighteen years of age to those in persons under eighteen is much larger than one is led to believe from the literature of the subject. Of the last sixty-five cases of this affection that have come under my observation, thirty occurred in persons over eighteen and thirty-five in persons under eighteen. Eleven occurred in persons thirty years of age or over. The oldest person with this trouble was thirty-eight. The large majority of these persons were negroes, and every case where the person was over eighteen occurred among the negroes; and to one who has visited many of the negro houses M. Truc's "la malpropreté de la figure et des mains" appeals at once. If personal neglect alone, however, were the cause of phlyctænulæ, then this affection would attack a whole family and not confine itself to one member, and recur time and again in this one member. The same might be said of "improper food," "bad air," "improperly ventilated rooms," and similar things; for if these were the causes of the trouble in question, then one would seek for phlyctænulæ in all the children of the household living under the same conditions, whereas only one or two children in a whole block of tenement-houses will be found to be affected. The sole cause, or, if not the sole, far and away the chiefest cause, of phlyctenular eye troubles is to be found *in the nose.* In every case, since my attention has been drawn especially to the connection between phlyctænulæ and the intranasal condition, have I been able to find sufficient cause for the eye inflammation in the nose. In the five cases cited above what do we find? Adenoids of the naso-pharynx (and by this is meant that the adenoids of this region were in an exaggerated condition, at times filling the whole naso-pharynx) were present in all five cases; swollen inferior turbinates, from either true or false hypertrophy, in all five cases; discharge from the nostrils in all five cases, greater in the cases where there existed an eczematous condition of the lip, nose, eyelids, face, or ear; in three of the five cases did this eczematous condition exist, and involving one or more, in one case all, of the parts mentioned; in two cases there were concomitant lid affections, blepharitis marginalis or Meibomian cysts; in all the cases there was a greater or less degree of tonsillar hypertrophy. (No note is made of the condition of the ear or of the general health, as the former has nothing to do with our question, while as regards the latter the persons afflicted with phlyctenular eye troubles enjoyed as good health as those who came for other eye affections.) Mention is made of the condition of the tonsils, because their enlargement is due in a measure to the same cause that produced the naso-pharyngeal adenoids, a tendency to hypertrophy of the lymphoid tissue of these parts plus certain exciting causes. Hypertrophy of the tonsils and adenoids of the postnasal region most generally go hand in hand. As regards the conditions of life under which these phlyctenular patients lived, there could be no line drawn between them and the members of their family who brought them to the clinic. If we look over these five cases, we find that the patients all had adenoids of the naso-pharynx—a condition which well-nigh invariably accompanies phlyctenular conjunctivitis in children under eighteen years of age, and it is the rare exception that we do not find the same naso-pharyngeal condition in those over eighteen years of age who have this eye trouble. As the primary cause of phlyctenular conjunctivitis in nearly every instance, then, I would place adenoids of the naso-pharynx; for, when the normal adenoid tissue of the naso-pharyngeal space becomes hypertrophied, it secretes a great quantity of matter, at times mucous, at times muco-purulent. A part of this secretion finds its way into the pharynx and is swallowed or spit out; the other part runs forward into the nose, especially when the person affected is sleeping, and thence it escapes by the nostrils. This secretion is not altogether non-irritant, and in its passage through the nasal air spaces produces a swelling of the turbinates, especially of the lower turbinates, which in turn produces greater or less degree of nasal stenosis. Owing partly to this condition of nasal stenosis and partly to lack of attention on the part of the patient, this secretion undergoes in the nose disorganizing changes, which in turn make the secretions more irritant, as may be proved by the evidences of ulcerations that one finds from time to time in the nose cavities under these conditions and the effects these secretions have on the skin of the face. Whether these changes are chemical or due to bacteria is to be determined. At all events, the secretion from the adenoids or the inflamed nose membrane is sufficiently irritant at times to cause an eczematous condition of the whole upper lip below the nostril entrance. This changed secretion from the naso-pharyngeal adenoids or the nose membrane, or both, is, I believe, the direct cause of the phlyctenular eye inflammation, and for the following reasons: It is never absent in children with phlyctænulæ of the eye; it is the cause of the eczematous condition of the face, as can be proved by the rapidity with which these eczematous patches disappear after the removal of the adenomatous tissue and proper treatment of the nose, even when the patches are left entirely untreated. And if this secretion is irritant enough to cause an eczematous condition of the skin of the face, at times discrete, at times confluent, from the nostril entrance to the ear, it is certainly irritant enough to produce some inflammation of the eye membrane; and if this inflammation is not phlyctenular, what character does it assume? In those cases in which there is present, accompanying the phlyctænulæ, an eczematous condition of the face, the phlyctenular trouble is always on the side of the face where the eczema is; it may also be on the other side; because we do not find phlyctenular eye trouble where there is not accompanying nose trouble; and, lastly, because I have seen in one instance a phlyctenular ulcer at the corneal margin so deep that I expected it every day to produce perforation, heal more rapidly than I had any reason to expect from the use of the applications usual in such cases, when I had removed sufficient of the adenoids from the naso-pharynx to stop the excessive nasal secretion and to cause a healing of the eczema of the face. (I speak here of my experience in the matter, though it is perfectly possible that the secretion from the nose of one person, provided this secretion is in the proper state of disorganization, if transferred to the eye of another, may cause a phlyctenular condition of the eye of the second person.)

While the prime cause of phlyctenular ophthalmia can in the vast majority of cases be traced back to adenoids of the naso-pharynx, there are cases where these adenoids are absent. Here the cause of the phlyctænulæ is to be sought in some diseased condition of the nasal mucous membrane.

De Wecker says that "phlyctenular conjunctivitis is the only form of conjunctivitis which is not inoculable, provided it has not changed its character and become changed into catarrhal conjunctivitis." This statement is interesting in more ways than one. I have a patient under treatment at present who has catarrhal conjunctivitis in her right eye and phlyctenular conjunctivitis in the left. The left side of the face has the eczematous patches of the nose, lip, eye, and ear; the right side has no such patches. It is not infrequently the case that patients having adenoids of the naso-pharynx suffer from catarrhal conjunctivitis; but that catarrhal conjunctivitis and phlyctenular conjunctivitis have the same specific cause is highly improbable, and an additional cause is necessary for a phlyctenular conjunctivitis to be changed into a catarrhal one. They may both find their cause in the altered nasal secretion; it may be from different microbes, it may be that one is microbian, the other chemical in its origin. The phlyctenular ophthalmia may be the starting point for a catarrhal process; the reverse of this statement I think hardly probable. The fact, as stated by De Wecker, that phlyctenular conjunctivitis is the only form of conjunctivitis that is not inoculable tends to lend weight to the idea that the simple phlyctenular ulcer may be due to a chemical irritant, this chemical irritant being some product of the disorganized secretions from the mucous membrane of the nose or of the adenoids of the naso-pharynx, either while these secretions are in the nose or after they become exposed to the outer air. The appearance, too, of the simple phlyctenular ulcer is suggestive of its being a result of a chemical irritant, as are also its history and manner of disappearance. Moreover, the fact that the inflammation of the conjunctiva in these cases is most frequently partial lends weight to the idea that possibly we have here to do with a chemical cause.

Meyer says that the cutaneous eruptions of the eyelids or of the surrounding skin, such as eczema or zona, seem to point to phlyctenular conjunctivitis as an exanthematous disease of the mucous membrane depending on the ciliary nerves. Hence it has been called conjunctival herpes. De Wecker alludes to the same view, but hesitates to lend himself much to it. One may grant a good deal to the influence of the ciliary nerves, but one would hesitate a while before attributing huge patches of eczema covering the half of one side of a lip, or the half or more of the external ear, to the influence of the ciliary nerves, especially when removal of certain diseased tissue from the naso-pharynx cures this eczema without having had any appeal to the aforesaid nerves. As to the influence of astigmatism in the production of phlyctenular conjunctivitis, I see no connection whatever between the two, and I believe that the astigmatic eye is no more subject to phlyctenular troubles than the hyperopic or myopic eye is. Meyer states that phlyctenular eye inflammations occur after scarlet fever, measles, and small-pox. And the reason is not far to seek, for all of these diseases tend to bring about naso-pharyngeal adenoids, in which we must seek the cause of the phlyctænulæ.

It may justly be asked why it is that with the great frequency of adenoids there is only a relatively small number of cases of phlyctenular troubles, and why it is that phlyctænulæ are found chiefly among the patients of the poorer classes? In the first place, most cases of nose trouble receive some kind of treatment, if it is nothing more than blowing the nose frequently, or attempts to wash the nose out by drawing water through it, and the use of the handkerchief is almost universal. The children of the better classes are kept clean and their noses are constantly wiped, and they are early taught to use the handkerchief for this purpose. And these attempts to clean the nose prove sufficient to prevent the secretions remaining in the nose long enough to undergo disorganizing changes. In the children of the poorer classes it is different; they are subject to more or less neglect from their parents, whose miseries and struggles for existence give them more serious things to think about than teaching their children the importance of blowing their nose or of wiping their nostrils; nor can they always furnish a clean handkerchief for this purpose. With the negro, especially, ignorance and general habits of filth prevail to such an extent that when added to their poverty it is often the case that one or no handkerchief is the sum of their possessions in this line, and the use of the article is correspondingly limited. It is probable that in most of the cases of phlyctenular ophthalmia the secretion is got into the eyes during sleep, and if the phlyctenular inflammation affects only one eye it will be the eye of the side upon which the patient sleeps. The secretion runs from the nostrils down the cheek on the pillow, which it moistens, and then the movements of the child rub this secretion into the face, ear, and eyelashes, whence it finds its way into the eye. With the poorer classes, again, the pillow-cases remain unchanged for a long time, and thus this secretion finds ample opportunity and time to undergo changes, and then to be transferred to the face of the child or person who sleeps with his face on the pillow-case night after night.

If the phlyctenular ulcer is due to some product of the disorganized nasal secretion, it may be asked, Why, then, do the phlyctenular ulcers rarely, if ever, attack the mucous membrane of the lids? Why do they occur most frequently in the neighborhood of the corneal margin, less frequently on the cornea itself? Why do they occur more frequently at the outer than the inner margin of the cornea, more frequently along the lower than the upper margin of the cornea? The question may be answered from the chemical irritant standpoint, though more or less imperfectly. As stated above, it is probable that most of the phlyctenular inflammations originate during the hours when the patient is in bed with the eyes more or less closed, and are due to the changed nasal secretion finding its way from the nostrils to the eyelashes, and thence into the eye.

During sleep, and especially during the time when a person is in bed with his eyes closed before sleep comes to him, the eyelids are less closely approximated directly over the cornea than elsewhere, and the *chevaux-de-frise* formed by the eyelashes against the admission of foreign substances of all kinds into the eye is less effective over the cornea and the conjunctiva immediately adjacent than at either corner of the eye. In many persons, when the eyelids are merely relaxed and no effort is made to close them tightly, it will be found that the cornea is still visible between them and that the external angle formed by the meeting of the upper lid with the lower has its apex just beyond the corneal margin; the same for the internal angle, only this angle is slightly greater than the external angle. It is in this external angle that the phlyctænula is frequently found, and it is not improbable that, as above stated, since the phlyctenular ophthalmia most frequently attacks the eye of the side upon which the person affected sleeps, the reason the phlyctænula is found in this external angle at the corneal margin is that it is here that the specific substance from the nasal secretions finds its way, assisted by gravity and the moisture furnished by the eye. It is most probable that this specific substance, whatever it is, requires to be left in contact with one point of the conjunctiva a certain length of time, and that it must be present in a certain quantity, for it to produce its characteristic eruption; this being the case, the reason that the cornea escapes as frequently as it does is that it is difficult for a sufficient quantity of the poison to accumulate at one point, the curvature and moist condition of the surface of the cornea causing it to run off.

The cornea, however, is attacked frequently enough to show how much of the irritant may at times accumulate between the lids. The reason the conjunctiva of the lids is so rarely attacked is probably the constant movement of the lids when the person is awake, and the amount of normal lacrymal secretion being sufficient to wash away the cause of the phlyctenular trouble. In the same way anatomical conditions can be brought in to explain, probably, why it is that the other parts of the corneo-scleral margin are attacked in the order of frequency in which they are attacked. There is reason, too, to believe that this product from the nasal secretion of which we are writing is at times more virulent, or at least reaches the eye in a more concentrated form, than at others.

There are several other lesser points of interest in regard to phlyctenular ophthalmia. One of these is the relation it bears at times to a running nose. While I believe the nose in nearly all cases furnishes the cause of the phlyctenular inflammation, it is not improbable that when this inflammation has once been started the eye itself then is the cause of supersecretion from the nasal mucous membrane of the side on which the eye is affected. Phlyctænulæ and a running nose are so often seen together that some connection between the two immediately suggests itself. I have no reference now to the excessive nasal discharge which furnishes the cause of eye trouble, and most frequently takes its origin from adenoids, but to the thin watery discharge from the nose, giving the appearance of an acute rhinitis, and confined to the side upon which the phlyctenular eye trouble exists. Perhaps the explanation of this discharge is as follows: In many cases of phlyctenular conjunctivitis the secretion of tears is excessive—so much so that they produce an exceedingly annoying inflammation of the skin at the margin of the lids, especially at the external canthus. In these cases the escape of tears by means of the lacrymal canal is excessive, and it is either the tears themselves escaping through the nose, or the supersecretion from the nasal mucous membrane set up by their passage into the nose, or both, that gives this appearance of an acute rhinitis superadded to the preexisting nose trouble.

Treatment.—Meyer says, and all the authorities agree with him, that "a characteristic feature of phlyctenular ophthalmia is its predisposition to frequent relapses." Read between the lines, this means that the treatment of this form of ophthalmia has always been directed toward healing of the phlyctænulæ as being in themselves the area coextensive with the cause and effect of the trouble. All writers also agree that "general treatment must not be neglected," and some of them give directions, more or less minute, as to what a patient with phlyctenular ophthalmia must take as medicine, and what he may and what he may not eat. "Strict hygienic surroundings must be insisted upon." Meyer says that "for the excoriations of the skin, so frequent about the nostrils and lips, we use glycerin, a solution of nitrate of silver, and later an ointment of lead or zinc." "We have seen benefit derived from prolonged rubbing of the whole body with salt water." "*We must also attend to the nasal mucous membrane by injecting or otherwise locally applying an astringent or caustic lotion.*" It was the practice in Hirschberg's clinic, two years ago, to prescribe in these cases yellow oxide salve for the eye, *and an iodoform salve for the nose.* Yellow oxide salve (gr. viij–xxiv to ℥ j) is advised by all writers, and we must agree that its effects in promoting healing of these phlyctenular ulcers are in most cases certain and rapid. Calomel receives too its share of praise.

The proper treatment for phlyctenular ophthalmia, and the only treatment that will have any effect in the prevention of relapses, is the one which looks to the *nose* as the source of the inflammation. In children the first thing to be done is to *remove from the naso-pharynx the adenomatous tissue, the prime cause of the troubles under consideration.* The simple injection of astringents into the nose, or the application of caustics to its membrane, or the insertion of iodoform salve into the nose with a feather, will not do. The only hope of preventing the relapses is to be found in the removal of sufficient of this adenomatous tissue to clear the naso-pharyngeal space, to stop the excessive secretion that continuously finds its way into the nose. When the naso-pharynx has been put into a healthy condition, the swelling of the turbinates subsides, there is no longer any blocking of the nose passages with the secretions, the eczema of the face heals, and we may reasonably hope that there will be no return of the phlyctænulæ. In adults our attention should first be drawn to the condition of the naso-pharynx, where in the large proportion of all phlyctenular inflammations the adenoid tissue will be found to be hypertrophied and otherwise diseased. And here again the proper treatment of the eye trouble is to be found in the proper treatment of the naso-pharynx. In a certain very small proportion of the cases occurring in adults the naso-pharynx will be found on examination to be fairly clear and in a seemingly healthy condition. In these cases the turbinates will be found to be enlarged and to be the source of considerable secretion, which at times is much more profuse than at others—for example, when the patient takes fresh cold. Our treatment here must be directed to the turbinates. In a third small proportion of cases we find other diseased nasal conditions than the two mentioned above to be the cause of the secretions which produce the eye troubles under consideration. It is superfluous to mention all these conditions here; it is sufficient to say that the eye demands that these be treated, and as carefully as the adenoids or hypertrophied turbinates. In some cases the nose at the time the patient first presents himself may apparently be dry, but examination of it will show enough trouble to furnish excessive secretion.

As to the method of treating post-nasal adenoids only a few words will be said. There is but one treatment that is worthy of consideration, and that is removal. To sprays, local applications, acids, galvano-cautery, internal medicine, etc., there are objections of one nature or another which make their use far inferior to removal. In small children a condition of chloroform semi-narcosis should be induced, during which the excess of adenomatous tissue may be fairly well removed with the aid of a wire snare or Loewenburg's forceps. More than one operation may be necessary, and a curette may have to be brought into assistance. In children over seven or eight years of age, and in adults, the use of White's palate retractor makes the removal of post-nasal adenoids one of the easiest of the operations in the pharyngeal region. Here, where the adenoids are of the proper size and form, a snare can be used to advantage; but Loewenburg's forceps, or some modification of it, will be found to be most generally useful. The minutiæ of this operation and the extent to which this tissue is removable are too well known to throat men to need further detail here.

As to the local treatment that should be directed to the eye affected with phlyctenular ophthalmia—this will necessarily depend upon the nature of the phlyctenular ulcer and the extent to which the cornea is involved, if at all. Usually a vaseline ointment containing yellow oxide of mercury (two grains and a half to the drachm), applied within the lower lid night and morning, is sufficient to bring about a cure of the phlyctænula in a few days. When, however, it assumes a purulent character, or there is superadded to the phlyctenular conjunctivitis a catarrhal process, yellow oxide is less quick in its results and less certain. In all cases of phlyctenular ophthalmia the use of chlorine water is advantageous. It is the rule at the clinic of the Richmond Eye Infirmary to prescribe it as follows: Thirty to sixty drops of chlorine water to a glass of ice water, and with this solution to make cold applications to the eye, from twenty minutes to half an hour at a time, three times a day. I find that cold applications are more satisfactory than warm or hot ones in these cases of simple phlyctenular conjunctivitis. The chlorine solution may be made stronger or weaker according as the object is to use the chlorine for its own effects, or prescribe it to make the patient use the cold applications to his eyes. It is well after the ulcer heals to make the patient use calomel blown into the eye for a week or two. Special consideration of the treatment of pustular phlyctænulæ and of the perforating phlyctænulæ would take us beyond the object of this article.

The treatment of the excoriations of the skin, nose, ear, etc.—the frequent companions of phlyctenular ophthalmia—is to get the nose and naso-pharynx into a healthy condition. These excoriations will then heal without treatment in most cases. Should a salve be thought advantageous during the nose treatment, one consisting of two parts of subnitrate of bismuth and one part of pure glycerin will be found to act beneficially. In regard to the directions as to "personal cleanliness," etc., to be given the patient, the main point is to explain to him the cause of his eye trouble, and to tell him to blow his nose as often as he feels it stopped up, and then to wipe carefully away from the nostrils all the secretions; and, when he finds that he can not clear his nose by blowing it, to snuff up a weak solution of warm salt water, for this will assist him in loosening the secretions in his nose. He should be cautioned, too, against sleeping on a dirty pillow. Before all, however, *the treatment for phlyctenular ophthalmia must be directed to the naso-pharynx and nose*, for these parts furnish the cause of the trouble.

Buena Vista Hot Springs, according to a Denver dispatch to the New York *Sun*, is the name given to a hot alkaline and sulphurous spring recently discovered in Buena Vista, in western Colorado.

A CASE OF
TRICHINOSIS TREATED WITH ARSENIC.

By WILLIAM HUTCHINSON MERRILL, M. D.,
PEPPERELL, MASS.

This case is reported not on account of the rarity of the disease, for, although somewhat rare in the United States, the numerous cases reported in our foreign journals give us a copious literature on the subject, but on account of the apparent isolation of the case, and more particularly because of the strong curative effects which arsenic seemed to exercise on the course of the disease. In fact, the prevalence of trichinosis in many parts of Europe is surprising when we consider the ease with which infected meat can be rendered innocuous. Cooking is a specific and a temperature of 57° C. fatal. The patient was under my care at Ward's Island Immigrant Hospital during part of the month of March and the month of April, 1890:

Date of admission, March 27, 1890. Paternoster V., aged twenty-five years, a laborer, and by birth an Italian. The patient's history, owing to his slight knowledge of English and the impossibility at the time of obtaining an interpreter, is perhaps imperfect in many points of interest, but it is the best that could be obtained under the circumstances. He was admitted bearing the doubtful diagnosis of syphilis. An inquiry made as carefully as possible into his family and personal history elicited nothing of importance. Up to twenty days before his admission no clew could be obtained as to the cause of his present illness. At that time, however—twenty days previous to his admission—he, together with a number of other Italians, ate of Bologna sausage. How soon after this eating of sausage he commenced feeling unwell is doubtful. He was uncertain, but thought about two weeks previously. He noticed first what seemed to him an attack of indigestion, vomiting, very acute pain in his stomach, diarrhœa, and distaste for food. Soon a cough was added to these symptoms and his voice sounded strangely hoarse. The pain and vomiting improved, but, the other symptoms continuing, he applied for admission at the hospital. At the first examination his appearance excited attention. His cheeks were of a pale-bronze color. At each inspiration his alæ nasi would dilate like those of one suffering from dyspnœa, while his words, spoken through dry and narrowly opened lips, resembled the speech in commencing tetanus, and were rendered almost unintelligible from the husky whispered utterance. The tongue was dry and cracked red on the dorsum, but at its edges covered with a thick yellowish pellicle. His eyes showed well the Argyll-Robertson symptom. Vomiting was still troublesome, but seemed to bear no relation to the ingestion of food. The cough was hard and dry and the dyspnœa peculiarly troublesome. The throat was dry, and on examination the mucous membrane showed uniformly reddened. Actual throat pain, however, appeared slight. There was no appreciable enlargement of the lymphatic glands. The stomach was not irritable to food. The whole stomach area, on percussion, yielded a markedly tympanitic note. The bowels were loose to the extent of three or four passages in twenty-four hours. These passages had no diagnostic characteristic.

Urine passed in the first twenty-four hours, fifteen ounces. No albumin; no sugar. The microscope gave negative results. Pulse, 100, strong and full. Temperature, 100·8°; respiration, 30 per minute.

Physical Examination.—Lungs: Inspection, skin dry and rough, with a few scattered petechiæ. Palpation and percussion negative.

Auscultation: Voice and breathing unchanged. A few moist râles, heard during inspiration and expiration, are pretty generally diffused both anteriorly and posteriorly.

Heart.—At base, a slight murmur, soft and blowing in the first sound over the upper part of the præcordium, possibly hæmic. The second sound was loud and valvular.

Spleen not enlarged.

Examination of the abdomen gave no important result.

The arms could be but half extended, owing to the rigidity of the biceps, the fibers of which were to be felt hard and tense throughout the length of the muscle, while the contraction of the bicipital tendon formed a prominent ridge in the hollow of the elbow. The elbow joints were swollen, but the ordinary manipulations failed to give any signs of fluid. Movement of the arms caused considerable pain, while both superficial and deep pressure elicited marked tenderness. Muscular strength was very much diminished. No œdema. The legs, on the contrary, were markedly œdematous. The knee joints were swollen, but, like the elbows, gave no signs of intra-articular fluid. In examining the reflexes, the knee-jerk and ankle clonus were found absent, while the superficial reflexes were present in about normal amount. His gait resembled that of a patient suffering from spastic paraplegia, with the exception that the tremor noticed in the paraplegia was absent here. In each complete step the moving foot seemed to fall behind the rest of the limb and was dragged into its advanced position by shuffling it across the floor and only by an evident effort. Yet the muscular strength of both legs was found to be undiminished by ordinary tests. On standing upright with his eyes closed (Romberg) he invariably tottered and would, without support, have fallen.

The diagnosis of trichinosis was made then, but the scanty urine seemed primarily the important symptom toward which treatment should be directed. Accordingly, diuresis and diaphoresis were encouraged by the ordinary means. On the following day a hot-air bath was added to the previous treatment, and in forty-eight hours the amount of urine passed in twenty-four hours had increased from fifteen to forty ounces, where it remained on an average until his discharge.

March 29th.—A linear incision was made over the belly of the right biceps and a small cube of its muscular substance removed. A portion of this, teased in physiological salt solution and examined with a lens of low power, showed trichinæ in abundance in their earlier adult form: none were found in the stage of granular degeneration. Sections stained with a double alcoholic solution of fuchsine and methylene-blue showed the trichinæ stained blue, while the tissues were stained red. Occasionally a single worm was found stained by the fuchsine, but the specimens, taken as a whole, showed each trichina and capsule clearly and in sharp contrast with the tissues. The ordinary method of examining flesh suspected of being infected by trichinæ is valuable for diagnosis, but useless if the specimens are intended for preservation. The method mentioned above, or some modification of it, will preserve specimens without fading for several years. The sections cut and stained at the time under consideration are as brightly colored as when first made. I do not know that this method has been used previously. I have not found, in any of the literature on the subject, that an attempt at staining specimens of trichinæ has ever been made. In this particular case the method proposed answered every purpose, although from a larger experience many improvements on the original form could undoubtedly be made.

30th.—Patient complained of great pain in opening and shutting his mouth—evidently caused by a myositis in the masseters. The fibers of the masseter on the right side seemed particularly rigid. The gums were large and spongy.

April 3d.—Another muscular slip examined with the same result.

5th.—Slight enlargement of the lymphatic glands lying just behind the posterior borders of the sterno-cleido-mastoid muscles. Right hand and wrist œdematous. On March 29th a stimulant and tonic treatment was commenced with the hope of making the patient's strength equal the demands made upon it by the disease until the death of the worm gave a chance for convalescence. In spite of treatment, his general condition has become steadily worse. His appetite has gone, while his mouth, opening only with great difficulty, rendered swallowing almost impossible. Pulse, 120; temperature, 102°; respirations, 40 a minute.

6th.—Ordered Fowler's solution of arsenic, gtts. v, t. i. d., to be increased gtt. iij *per diem* until constitutional effects showed themselves.

For two or three days after this the patient did not improve —in fact, seemed fatally ill. The œdema grew especially great. The mouth could hardly be opened at all, while the pulse became more rapid and feeble, but by the 11th of April a slight improvement seemed to show itself. The jaw grew less rigid. Appetite returned. The œdema and pains in the limbs diminished. The pulse began to regain its strength, while the respirations grew slower and deeper. From the 11th to the 25th of April improvement was steady and fairly rapid. The lips became moist and the color of the face better; the tongue clean and the gums harder. Rigidity of the jaw, hoarseness, and cough entirely disappeared. On examination of the lungs, no râles were heard; over the base of the heart, however, the hæmic (?) murmur still remained. The œdema and swelling of the arms had gone. The œdema of the legs and thighs was much diminished in amount. As yet, however, he could walk but poorly. The skin over the abdomen and outer side of the thighs was cracked and dry. Striæ, resembling somewhat those seen upon the abdomen of a pregnant woman, extended from the median abdominal line downward and outward to as low as Poupart's ligament. Their cause seems obscure. Their resemblance to the lines following hyperextension of the skin was most exact, but the conditions necessary to produce such a result had not been present. The arsenic had been increased irregularly until the patient was taking thirty-six minims in twenty-four hours. Before this dose was reached constitutional symptoms had shown themselves three or four times. On the advent of such symptoms the dose was lessened; on their disappearance, cautiously increased until the maximum was reached. This dose was given steadily until the patient's improved condition warranted its gradual diminution. The remainder of the history of this case need be noticed only on account of the patient's steady improvement. On April 30th he was discharged convalescent; not in complete health, but with rapidly increasing strength and appetite.

Single cases are rare. In an analysis of 1,069 cases the disease occurred in isolated cases but four times. In Europe, between the years 1860 and 1877, cases to the number of 30,442 were reported, but all as occurring in epidemics. The percentage of mortality in the European epidemics for those years was extremely low, in the 30,442 cases only one and one third per cent. In the 1,069 cases collected from various sources the percentage was somewhat higher, although still comparatively low—one case dying in every twenty-two sick with the disease. On the other hand, the four isolated cases show an exceedingly high mortality, three of the four reaching a fatal termination. It is possible, of course, that other cases of this disease appeared at the same time with the one under consideration; if so, I did not see their report nor hear of them.

The treatment of trichinosis has always been unsatisfactory. Glazier, in his *Report*, says: "Means by which the muscular and intestinal trichinæ can be destroyed have not, after the most careful search, been found." Many drugs have been tried empirically without success. Schomberg reports three cases—two women and a man. The women died, but the man recovered. For several days after infection he drank freely of whisky. Another case is reported in which a man ate infected meat without harm after drinking two bottles of red wine, while, according to Ruprecht, alcohol kills trichinæ in a few hours. These cases are not conclusive, however, as the disease did not develop in either, and eating infected flesh is not invariably followed by infection. Virchow says: "Stimulants give no security against infection, and much less a promise of cure," and advises "powerful evacuants." Friedreich, in Virchow's *Archiv*, recommends picro-nitrate of potassium; Behrens, salts of calcium to favor calcification. Others propose calomel, jalap, iron, digitalis, santonin, benzine, and many other remedies. Their practical value, except as adjuvants, is doubtful. Fiedler, in 1885, in the *Deutsche Archiv für klin. Med.*, advised glycerin in large doses. Lesshaft, in the same year, used glycerin both *per os* and *per rectum*, combined with benzine and sapo medicatus, but without success. In the following year the same author experimented with small dogs infected with trichinæ, using large doses of glycerin. In each case the drug failed to exert a beneficial influence on the disease. Merkel, in 1885, treated a patient with glycerin, giving the drug in doses of fifteen tablespoonfuls, and reported a cure. The treatment of this patient commenced thirty hours after his eating sausage infected with trichinæ. No symptoms of the disease had at that time shown themselves. The possibility that this man might not have infected himself with the meat will always render it impossible to place an exact value on the method of treatment. If glycerin is used it should always be given with a covering of keratin, as first advised.

The use of arsenic as a remedy in trichinosis has not been mentioned in any of the literature to which I have had access. It is impossible, of course, to draw wide-reaching conclusions from a single case, but the action of arsenic in this case was so marked that its value as a remedy in this troublesome disease would seem, at least, worthy of trial. Previous to the administration of arsenic the patient was steadily growing worse, while a few days after the drug was commenced he as steadily grew better. The beginning of the improvement could be reckoned at the end of the second week, when the vast majority of cases are at their worst, while the whole course of the disease, lasting at the most six weeks, fell at least two weeks short of the average length. The exact action of arsenic in such a disease is difficult to define. It has a certain germicidal power; it diffuses itself with great facility by the blood throughout the body; it increases the capillary circulation and causes certain cells to undergo a retrograde metamorphosis. It is possible that through a combination of these actions it may exert some deleterious action on the parasite.

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THE HYPERPYREXIA OF RHEUMATISM.

DR. H. C. MALE has prepared for the *Practitioner* a study of eighty-three cases of rheumatic hyperpyrexia reported during the twenty years ending in 1890. In fifty-five of these cases the temperature exceeded 106° F., running as high as 110·4°. In one series of cases, thirty-nine in number, all having as their maximum temperature 106° to 110°, thirty-four were treated by cold bathing, with fourteen recoveries. Of those having the more moderate pyrexia, with the maximum at 106° and 107°, eight out of eleven patients recovered under the cold-bathing treatment; all of those that were not bathed died. In the last ten years cases and recoveries have been reported from time to time in the journals, and no fewer than sixteen cases of temperatures ranging from 106° to 110° are on record. The number of recoveries was thirteen. The pack was used in eight of these, with two deaths; the bath was used in the other cases, with one death. It is not proposed from these figures to base a ratio of recoveries on a study of the reported cases alone, for it is probable that many unsuccessful cases have not been reported, while the majority of the successes have without doubt been given to the journals. But these reported recoveries are a satisfactory witness that lives have been saved which under other conditions must certainly have been lost under the strain of extreme temperatures. The writer urges the importance of making a most careful record of the temperature in all cases of rheumatic fever, and of recognizing at once the earliest indications of approaching hyperpyrexia. So soon as the thermometer shows an undue rise, there should be no time wasted over the administration of drugs, but an attempt should be made at once to check this rise by the application of cold to the surface. The result of such treatment in a favorable case is most gratifying. The patient may seemingly be dying from excessive heat-production one hour, and in the next hour may be in comparative comfort, with prospects of a speedy recovery. One bathing has frequently seemed to turn the scale.

SOME COMMON ERRORS IN THE FEEDING OF YOUNG CHILDREN.

IN a recent lecture reported in the *Practitioner* for July, Dr. Cheadle draws attention to certain points in the feeding of infants in regard to which faulty and injurious practices prevail. One of the most frequent sources of disaster is the sudden weaning with the use of fresh cows' milk and water. The massive curds formed from cows' milk are frequently beyond the feeble digestive powers of the infant. Dilution will partially remedy the matter, but can not as a rule be carried to a sufficient extent without unduly increasing the bulk of the food. The clots, by decomposing, cause colic, vomiting, and diarrhœa. Boiled milk not only is to a certain degree sterilized, but clots less firmly than raw milk. Children should be weaned on boiled milk and barley water. In the case of very young or delicate children, however, the milk should always be peptonized at first, a proper degree of dilution being observed at the same time. There is danger here of another grave error—the prolonged use of artificially-digested foods. While these preparations do excellent service in the case of children just weaned or with small digestive power, they are not proper for continued use. The power of digesting casein becomes gradually less, nutrition is impaired, and the child tends to become flabby, anæmic, and soft in bone. Still another error consists in the furnishing of an insufficient gross amount of nutritive material. A child may be unable to digest a mixture of milk unless highly diluted, but the capacity of the stomach being limited, it may be impossible for it to take a sufficient quantity of such a mixture to supply the material required for growth and nutrition. The difficulty may be overcome by the addition of cream or some good preparation of meat juice, the quantity of milk being increased as the digestive power develops. Food deficient in fat, as well as that deficient in protein, is certain to cause trouble. Fat especially is of great importance in the food of young children. Those deprived of these two elements are often large and fat, but flabby, anæmic, and rhachitic; yet most of the artificial foods upon which children are so largely fed are almost wholly lacking in fat and to a less degree in proteids. The presence of an antiscorbutic element in the food is also a matter of prime importance. Fresh milk contains the element in sufficient quantity, but all farinaceous foods, and all the dry artificial foods, are decidedly deficient in this regard. They require the addition of some fresh element to supply the antiscorbutic quality.

MINOR PARAGRAPHS.

THE MORTALITY OF SCARLET FEVER.

IN the *Lancet* for June 6th Dr. F. F. Caiger reports 1,008 cases of scarlet fever, with a mortality of 4·67 per cent. This is a most satisfactory result, and considerably below the average record. The severity of the disease was greater during the cold months of the year, and the rate of mortality higher than during the summer. The death-rate in the two sexes was almost identical. A point of much interest was the mortality at different ages. The rate under five years was 11·4 per cent.; over five years, 1·44 per cent. The mortality of 30,306 cases of scarlet fever treated in certain London hospitals shows a decided decrease at each quinquennium up to twenty-five years, when it is at its lowest. Further analysis shows a constantly decreasing mortality from the first year of life up to the fifth. Not only does the danger of a fatal issue decrease with advancing years, but the liability to contract the disease also diminishes, especially after the fifth year. The practical importance of these statistics is great. They afford additional evidence of the much greater fatality attending scarlet fever in the earlier years of life and its comparative mildness in later life. Although all previous evidence bears out this conclusion, there exists a curiously widespread belief that there is greater danger attending the disease in adults.

MEDICAL PRACTICE IN CONNECTICUT.

The following spicy delineation of the medical situation in Connecticut is taken from the *Bulletin of the Connecticut Board of Health:* "Sir: Anybody can practice medicine in Connecticut. You do not need to register; you do not need a medical diploma; you do not need to know the difference between opium and peppermint; you do not, indeed, need to know anything. You can simply come and live here and begin to practice. The laws of Connecticut will sustain you in collecting your fees for professional services, if you render any which you choose to call such. But if you undertake to carry me or my trunk to the depot for pay, you must get a license. If you peddle matches or peanuts, you must get a license. If you collect the swill from your neighbors, to feed your pigs, you must get a license. If you want to empty your cesspool, you must get a license. But you can practice medicine in Connecticut *without a license.*" The name of the writer of the letter is not stated. We are left to infer that he was one of the members of the State board, but this may not be the fact.

NEW YORKERS AT NEXT WEEK'S CONGRESS.

In the programme of the Congress of American Physicians and Surgeons, to be held in Washington next week, we find four hundred and six titles of papers to be read, reports to be made, and special parts in discussions to be taken, one hundred and twenty-two of which are by physicians living in the city of New York.

ARTHRITIS WITH PNEUMOCOCCI OCCURRING IN THE COURSE OF PNEUMONIA.

At the June meeting of the Société anatomique, according to *Le mercredi médical*, M. Macaigne reported that he had observed in a patient suffering from pneumonia on the right side an effusion into the knee joint on the same side. He removed by aspiration some creamy, greenish pus from the joint and found that it contained pneumococci. The pneumonia subsided, but the condition of the joint grew worse, and finally arthrotomy was performed with a good result. He exhibited sections of the synovial membrane of the joint in which pneumococci could be seen.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 16, 1891:

DISEASES.	Week ending Sept. 9.		Week ending Sept. 16.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	0	0	0	0
Typhoid fever	42	8	58	7
Scarlet fever	43	12	54	10
Cerebro-spinal meningitis	6	3	1	2
Measles	39	5	39	1
Diphtheria	70	20	75	24
Small-pox	0	0	1	0
Mumps	0	0	1	0
Whooping-cough	0	4	1	1

The New York State Board of Medical Examiners.—The following is an abstract of the minutes of the first regular meeting of the board representing the State society held on September 1st. The meeting was called to order by the temporary chairman, Dr. W. C. Wey, of Elmira. A ballot having been ordered, Dr. Wey was elected president and Dr. M. J. Lewi, of Albany, secretary. The board thereupon took a recess to attend a conference of the joint boards of medical examiners, and on reassembling ratified the following recommendations to the Board of Regents:

1. A medical syllabus to be prepared (covering all subjects in which examinations are to be held) under the direction and supervision of a committee of six, to consist of two members appointed from each board.

2. A committee on questions, composed of six members, two to be appointed from and by each board, whose duty it shall be, on the call of the secretary of the State Board of Regents, to convene at Albany and revise all questions submitted by the individual examiners under section 5 of the law.

3. Each question paper on the seven topics shall consist of fifteen questions, of which the candidate shall cancel five and shall be marked on his answers to the remaining ten.

4. One hundred points shall be the standard, and each candidate must secure seventy-five points in every branch before his or her name shall be recommended to the Regents as that of a proper person to be licensed to practice medicine in this State.

5. Four examinations shall be held during the coming year, the dates of which may be fixed at the discretion of the Board of Regents.

6. All examinations shall be conducted in the English language.

7. Examinations for medical license shall be conducted on all subjects at one continuous session.

8. No conference of the boards of medical examiners shall be held excepting on request of a joint call by a majority of the members of at least two of said boards, as certified to the secretary of the Board of Regents by the proper officers.

9. If, in the opinion of the Board of Regents, it becomes necessary or advisable, additional examinations shall be called as occasion may arise.

10. At least sixty questions shall be sent by registered letter to the secretary of the Board of Regents on or before September 15, 1891.

The following assignments of topics, arranged at a previous informal meeting, were indorsed:

Physiology and hygiene, Dr. William C. Wey; surgery, Dr. George Ryerson Fowler; obstetrics, Dr. William Warren Potter; anatomy, Dr. William S. Ely; chemistry and materia medica, Dr. Maurice J. Lewi; pathology and diagnosis, Dr. J. P. Creveling; theory and practice and therapeutics, Dr. Eugene Beach.

Dr. Fowler, of Brooklyn, and Dr. Lewi, of Albany, were selected as members of the questions and syllabus committee. Dr. Potter moved, and it was carried, that in regard to printed matter the form of heading be submitted to the secretary of the Board of Regents. Dr. Creveling moved, and it was so ordered, that a circular letter be sent to the members and delegates of the State Medical Society by the secretary containing such features as would give them a knowledge of our proceedings and plans. On motion, the board adjourned subject to the call of its officers.

Lectures on Diseases of the Urinary Apparatus will be delivered by Dr. J. W. S. Gouley every Tuesday night at 8.30, during the months of October, November, and December, at the Mott Memorial Hall, No. 64 Madison Avenue, beginning on Tuesday, October 6th. These lectures, supplemented by clinics at Bellevue Hospital, will be free to the profession and to students of medicine.

The following is a syllabus of the lectures: Part I.—*Phlegmasic Affections of the Urinary Organs.*—Section 1: 1. Introduction. Frequency of diseases of the urinary apparatus. Sketch of the composition, innervation, nutrition, and function of the urinary apparatus. 2. Outline of the general pathology of the urinary apparatus. 3. Summary of the ætiology, semeiology, diagnosis, prognosis, prophylaxy, and general therapy of diseases of the urinary apparatus. Section 2: The nature, ætiology, semeiology, diagnosis, prognosis, and special therapy of nephritis, cystitis, prostatitis, bulbo-urethral adenitis, and urethritis. 4. Interstitial nephritis, pyelo-nephritis, and perinephritis. 5. Cystitis: its causes, symptoms, progress, anatomical characters, diagnosis, and prognosis. 6. Cystitis: its treatment. 7. Prostatitis, acute and chronic: bulbo-urethral adenitis. 8. Acute urethritis: its nature and causes. 9.

Acute urethritis: its diagnosis and treatment. 10. Acute urethritis: its accidents; urethral hæmorrhage and conjunctivitis: its complications; balanitis, posthitis, balano-posthitis, phimosis, and paraphimosis: its consequences; lymphangeitis, inguinal adenitis, periurethritis, cryptitis, bulbo-urethral adenitis, prostatitis, orchitis. 11. Acute urethritis: its consequences continued; gonecystitis, trachelocystitis, pyelitis, nephritis, septicæmia, pyosapræmia, and rheumatism. 12. Chronic urethritis: its nature and treatment.

The New York State Examination.—The following list shows, according to year and college, the numbers of those who have availed themselves of the examination clause passed by the last Legislature, which frees them from a State examination:

New York Medical College and Hospital for Women	15
Niagara University Medical Department, Buffalo	19
Syracuse University College of Medicine	29
Woman's Medical College of the New York Infirmary	42
Homœopathic Medical College of the State of New York	43
Eclectic Medical College	48
Long Island College Hospital	68
Albany Medical College	70
University of Buffalo	108
Bellevue Hospital Medical College	120
University of the City of New York	169
Columbia College of Physicians and Surgeons	182
Total	913

Correct.		Defective.	
Class of 1869	1	Class of 1884	1
" 1879	1	" 1887	2
" 1880	1	" 1888	2
" 1881	1	" 1889	4
" 1882	1	" 1890	1
" 1883	1		
" 1884	8	Grand total	913
" 1885	10		
" 1886	25		
" 1887	50		
" 1888	112		
" 1889	588		
" 1890	104		
Total	903		

The Illinois Army and Navy Medical Association was organized at Springfield on June 26, 1890, with Dr. Hosmer A. Johnson, of Chicago, as president, and Dr John H. Rauch, of Springfield, as secretary. The objects of the society are the consideration of social, historical, and medical subjects connected with the late war. All reputable physicians now living in Illinois, whether in practice or not, who served in the army or navy during the late war, and all who were surgeons or acting assistant surgeons, who were with Illinois troops and are now nonresidents of the State, are eligible to membership. At the second meeting of the association, held in Springfield on May 18 and 19, 1891, Dr. John H. Rauch was elected president, vice Dr. Johnson, deceased, and Dr. Edward P. Bartlett, of Springfield, was elected secretary. The association adjourned to meet in Chicago at the time of the unveiling of the Grant Monument. This adjourned meeting will take place at the Grand Pacific Hotel, Chicago, on October 7 and 8, 1891. The unveiling of the monument will occur on October 7th at 2 P. M. Half-fare rates can be had to Chicago at that time upon all railways.

The New York State Society of Railway Surgeons.—The first meeting of this society will be held in the parlors of the Hotel Bensonhurst, at Bensonhurst-by-the-Sea, L. I., on October 27, 1891. A full attendance is desired. Programmes may be obtained by addressing Dr. George Chaffee, No. 201 Forty-seventh Street, Brooklyn.

Dr. Oliver Wendell Holmes, on August 29th, passed his eighty-third birthday. The *Boston Medical and Surgical Journal* is our authority for stating that he has been unusually well and happy of late. He does not belong in the company of those old men who complain of the burdens of age, but illustrates, on its negative side, the truth of the proposition of Cicero when he says: "To those who have no resources in themselves every period of life is burdensome."

The North Carolina Board of Health.—Dr. Thomas F. Wood, for many years the efficient secretary of the board, has recently been elected to another term of six years. Dr. S. W. Battle, of Asheville, was elected at the same time for a like tenure. They both sit as representatives of the State Medical Society. There are seven medical men in this board of nine members.

Change of Address.—Dr. Winslow W. Skinner, to No. 170 West Sixty-fourth Street.

The Death of Dr. Thomas T. Pratt, the son-in-law of the late Dr. Marion Sims, occurred in London on August 29th. He served with Dr. Sims on the American Ambulance in the Franco-Prussian war, becoming surgeon-in-chief after the resignation of Dr. Sims and Mr. William MacCormac. Dr. Pratt was born in Mobile in 1839, and was an alumnus of the Medical Department of the University of the City of New York, of the class of 1861. He served in the Confederate army until near the close of the war, when he went to Paris. His later years had been spent in London, and at the time of his death he was an inmate of the University College Hospital.

The Death of Dr. James Watt, of Brooklyn, took place on September 10th. The deceased, who was forty-seven years old, was of Scottish parentage, but educated in this country. He was interested in politics for many yeart, and was a member of the Assembly for one term and a candidate for the office of coroner. He was registrar of vital statistics of the Brooklyn Board of Health and was one of the first in this country to publish a weekly bulletin of vital data for the use of the profession and sanitary officials. He was a member of the Physicians' Mutual Aid Society and many other medical and charitable organizations.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending September 12, 1891:*

Wells, Howard, Surgeon. Ordered to special duty in fitting out the new naval hospital at Portsmouth, N. H.

Hall, John H., Surgeon. Ordered before the Retiring Board September 19th.

Ross, John W., Surgeon. Ordered, in connection with present duty, as member of Board on Labor Employment.

Society Meetings for the Coming Week:

Monday, *September 21st:* New York Academy of Medicine (Section in Ophthalmology and Otology); Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *September 22d:* American Orthopædic Association, American Pædiatric Society, American Association of Andrology and Syphilology, Congress of American Physicians and Surgeons, American Gynæcological Society, Association of American Physicians, American Dermatological Association, American Surgical Association, American Climatological Association, American Ophthalmological Society, Association of American Anatomists, American Neurological Association, and American Otological Society (first day—Washington); New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society; Buffalo Obstetrical Society; Medical Society of the County of Lewis (quarterly) N. Y.

Wednesday, *September 23d:* American Laryngological Association (first day—Washington); American Orthopædic Association, American Pædiatric Society, American Association of Andrology and Syphilology, Congress of American Physicians and Surgeons, American Gynæcological Society, Association of American Physicians, American Dermatological Association, American Surgical Association, American Climatological Association, American Ophthalmological Society, Association of American Anatomists, American Neurological Association, and American Otological Society (second day); New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical

Society of the County of Albany; Philadelphia County Medical Society.

Thursday, *September 24th:* American Laryngological Association (second day); American Orthopædic Association, American Pædiatric Society, American Association of Andrology and Syphilology, Congress of American Physicians and Surgeons, American Gynæcological Society, Association of American Physicians, American Dermatological Association, American Surgical Association, American Climatological Association, American Ophthalmological Society, Association of American Anatomists, American Neurological Association, and American Otological Society (third day); New York Academy of Medicine (Section in Obstetrics and Gynæcology); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); New London, Conn., County Medical Society (extra—New London).

Friday, *September 25th:* American Physiological Society (first day—Washington); American Laryngological Association (third day); American Orthopædic Association, American Pædiatric Society, Congress of American Physicians and Surgeons, American Dermatological Association, American Surgical Association, American Climatological Association, American Ophthalmological Society, Association of American Anatomists, American Neurological Association, and American Otological Society (fourth day); Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

Saturday, *September 26th:* American Physiological Society (second day).

Obituaries.

DAVID HUMPHREYS STORER, M. D., LL. D.

Dr. Storer, who in 1866 was the sixteenth presiding officer of the American Medical Association, and the oldest survivor of its presidents, with the exception of Dr. Davis, of Chicago, died at Boston on September 10th. He was probably the senior physician of that city, having been born in Portland, Me., on March 26, 1804. He was the son of Chief Justice Woodbury Storer, of that city. He was educated at Bowdoin College, being graduated in the class of 1822, and that same institution, fifty-four years later, conferred on him her degree of LL. D. In 1825 he was graduated from the Harvard Medical School, and he then settled in Boston. He became a member of the Massachusetts Medical Society in 1829, or seven years before Dr. Holmes. The annual discourse was delivered by him in 1851, on Medical Jurisprudence, and in 1860 he was anniversary chairman. He assisted at the formation of the Tremont Street Medical School in 1837, whence he passed up to the Harvard chair of obstetrics and medical jurisprudence, occupying that position from 1854 to 1868. He was also dean of the school until 1868, when he resigned. He was physician to the Massachusetts General Hospital from 1849 to 1858. In 1837 he had charge of the department of zoölogy and herpetology under the State Survey. He made many important contributions to natural science, especially in the department of ichthyology, among which were his *Synopsis of the Fishes of North America*, his *Report on the Ichthyology and Herpetology of Massachusetts*, and his history of the fishes of the same locality, which was published in parts between 1853 and 1867—works that are of permanent value to all students of North American ichthyology. He was an intimate and long-time friend of Professor Agassiz's, and one of his sons, Dr. Horatio R. Storer, was a private pupil of the great naturalist. Dr. Storer was a member of all the leading national medical organizations and an honorary member of the Medical Society of the State of New York and many others.

Letters to the Editor.

SPECIALIST AND GENERAL PRACTITIONER.

Hoboken, N. J., *August 26, 1891.*

To the Editor of the New York Medical Journal:

Sir: Who has not, during the last few years, noticed how the medical world inclines to specialism? Not only has the human body been divided into different parts, which have been given to different specialists, but even the different modes of treatment are practiced by different medical men to the exclusion of other therapeutic measures. There are the oculist, the otologist, the specialist for nose and throat, gynæcologist, neurologist, and so on. There are the masseur, electro-therapeutist, hypnotist, and others. Each one of these specialists will devote his practice to his specialty exclusively. No wonder that the general practitioner, seeing how each one of these men devotes his whole time to his specialty, will send his eye patients to the oculist, his nose and throat patients to the laryngologist, his ear patients to the aurist, his gynæcological cases to the gynæcologist, and so on *ad infinitum*. By and by he will be in the habit of retaining no other case but the exanthematous diseases—pneumonia, whooping-cough, rheumatism, and consumption; but even then many general practitioners will send their patients for special treatment to specialists. And it may go so far that the general practitioner will not be regarded as anything else than a medical directory which directs the patients to the proper specialists. The patients know this, and already, instead of asking their family physician what they should do, of themselves select a specialist for their different troubles. It no more enters their mind to seek advice of the general practitioner for all their troubles, as they know that he is a general practitioner in name only, but in fact is a specialist for acute internal diseases and for accidents. The general practitioner, in consequence, does not get more than one or two cases of eye trouble, ear trouble, and so on, in the course of a year, and, as it would not pay him to buy books and instruments and waste time and money on a class of diseases of which he might only get a case in years, he will be forced to continue in the deleterious practice of sending his cases to specialists. If this were all, then we could be quiet about this theme, as the only harm in the matter would strike the man who has not ambition enough to study all the diseases man is heir to, independently of the pecuniary reward this study may bring him. But this is not all. The general practitioner by not mastering all these specialties is unable to diagnosticate most of the cases that come to his office with accuracy, and therefore gives the patients treatment unsuitable to their disease. It does look easy to the general practitioner to diagnosticate a case as eye trouble, ear trouble, and so on. And so it is in some cases. Who can not tell that a case of acute conjunctivitis is eye trouble, that an otitis media chronica suppurativa is ear trouble, or that a case of purulent metritis is womb trouble? It is of cases that do not show their origin plainly that I wish to speak. Is there an aurist that has not met with a case of mastoiditis which has been treated as a case of convulsions by inhalation of chloroform? Is there an oculist that has not met with a case of iritis treated with a boric-acid solution as an eye wash? Is there a laryngologist that has not met with a case of subacute laryngitis treated as chronic bronchitis or incipient phthisis with syrup of squills or creasote? Is there a rhinologist that has not met with a case of hypertrophic rhinitis treated as atonic dyspepsia with pepsin or nux vomica? Is there a neurologist that has not met with a case of neuritis treated as rheumatism with massage? Is there a gynæcologist that has not met with a case of fibroids that had been treated on general principles with vaginal injections of tannic-acid solutions? I will report one case only which seems to me adapted to prove my standpoint correct.

Miss A., twenty-five years old, single—occupation, fine needlework—complains of short, hacking cough, pain in back and chest, dysmenorrhœa, loss of appetite, and headaches, and says she lost fifteen pounds during the last year.

Examination of chest negative. Sputum negative. Examination of throat shows phlegm in pharynx and nasopharynx and adenoid vegetations. Laryngoscopic examination reveals a chronic laryngitis. Nose shows hypertrophy of middle turbinated bones. Eyes show hypermetropia of a slight degree, but no asthenopia.

Diagnosis: Spinal neurasthenia, chronic pharyngitis, chronic laryngitis, hypertrophic rhinitis, hypermetropia.

Treatment: Adenoid vegetations removed by curetting, also applications of glycerin and tannin to pharynx. Argentum nitricum, fifteen grains to the ounce, to larynx. Hypertrophies of nose removed with galvano-cautery. Given interrupted galvanic current to spine. One fortieth of a grain of strychnine three times a day for one week, and + 1 D. spherical glasses for each eye for near work.

Result: The treatment lasted exactly thirty days; patient was seen ten times during that period. The cough and the pain in the back and chest disappeared. The menstruation was painless for the first time in several years. The appetite reappeared and the headache left her as soon as she wore the glasses. Whenever she read, however, without the glasses, the headache came back. Thirty days after she had commenced treatment she was cured.

What I wish to show with this case is this: that a young lady calls on me with cough, pain in the back and chest, poor appetite, and headaches. Had I given her a prescription I might have relieved her for a short time, but all her troubles would have reappeared in a little while, and in the course of a month, or earlier yet, my patient would look for the services of another "general" practitioner who would most probably treat her with some prescription for sick headache. After a while the patient would have made the round among specialists.

The neurologist might have referred all the ailments to the account of the spinal neurasthenia, treated the case with the galvanic interrupted current, strychnine, phosphorus, or coca, and relieved it for a time.

The nose and throat specialist might have referred all the trouble to the hypertrophic rhinitis and pharyngitis and treated the case accordingly. The oculist would have given the right glasses and possibly explained the other symptoms as due to muscular overstrain in accommodation. Undoubtedly the gynæcologist would have treated the dysmenorrhœa as caused by slight anteversion or retroversion with cervical stenosis; all the other symptoms could be easily explained by reflex action. Not one of all these measures taken could have given perfect relief, and only then would the patient be cured when she was treated by a medical man who was able to diagnosticate the case correctly—that is, who could refer each symptom to its proper cause.

We can not do justice to our patients if we are not able to diagnosticate their cases with accuracy. And as little as we can tell what is the cause of a headache if we are not versed in ophthalmology, otology, laryngology, rhinology, neurology, gynæcology, and all the other departments of medicine, as little can we diagnosticate most of the other cases that come to our offices.

If we wish to raise the standing of the medical profession, let us discourage specialism—not by treating patients with placebos because we do not know how to treat them properly, but by devoting our time and study not only to internal medicine, but to all other departments—and it will not take long before the seed will become a tree and the tree will bear fruit.

The patients, instead of going to specialists who only know a certain department of medicine, will go to the man who, by devoting his time and study to all the departments of medicine, has become truly what we call ourselves and what we all ought to be—general practitioners. A. W. HERZOG.

Reports on the Progress of Medicine.

PHYSIOLOGY.

By LOUISE G. RABINOVITCH, M. D.

The Relation of the Cervical Sympathetic Cord to the Epidermis and Glands.—S. Arloing (*Arch. de phys. norm. et pathol.*, January 1, 1891) concludes from his experiments that the cervical sympathetic cord includes vascular, glandular, excito-secretory, and trophic nerves. He demonstrates this by cutting the sympathetic nerve, after which there is suppression of epithelial secretion, comprising the salivary and nasal secretions. Marked epithelial changes take place in and around the nares, which become perfectly dry. He says this is independent of vaso-motor changes, since after section of the sympathetic there is vascular dilatation, which should give increased instead of decreased secretion. The existence of glandular nerves in the different secretory organs themselves is not excluded, however. Without the secretory nerves of the sympathetic the glandular secretion is diminished. These nerves regulate the evolution of the epidermis, as their section is followed by exaggeration of keratinization or delay of desquamation.

Structure and Composition of the Cerebro-spinal Fluid in Man.—J. Toison and E. Lenoble (*Compt. rend. d. soc. biol.*, May 29, 1891) report four analyses of this fluid; two specimens were obtained by draining the lateral ventricles for hydrocephalus, and two from the discharge of the fluid through the nose. The results of the examinations are in accordance with those of Méhu, with the addition of the confirmed presence of a reductive element. The results are thus formulated: 1. The fluid always contains leucocytes. 2. It is alkaline in reaction, odorless and colorless. 3. The specific gravity is about 1·007. 4. There is a constancy in the contained amount of mineral matter, from 8·30 to 8·80 grammes per 1,000 c. c. The sodium chloride is from 6·72 to 6·84 grammes. 5. There is no constancy in the amount of organic matter. 6. The presence of a reducing agent; its nature was not yet determined.

The Knee Reflexes during Artificial Epilepsy in Animals.—B. I. Vasiliev reports (*Vratch*, June 27, 1891) the following results of his experiments, which he thinks are well to utilize in diagnosticating an epileptic attack: 1. There is total absence of the reflexes during the tonic period of convulsions because of the general rigidity of the tissues, but they can be provoked in most cases during the clonic period. 2. In severe cases followed by a period of coma the reflexes are usually absent, or at least much reduced in intensity, and can be detected either immediately or several seconds after the clonic convulsions. 3. Absolute absence of the reflexes after epileptic convulsions were observed to last for several minutes. 4. They are restored gradually, and sometimes half an hour elapses before the normal condition is reached; in some cases this is preceded by a temporary increase of the knee reflexes.

The Influence of a Mixed Electric Current on the Motor Function of the Brain Cortex.—S. N. Danillo reports (*Vratch*, June 13, 1891) the results of experiments on frogs and dogs by stating that a combined galvanic and faradaic current in the same pair of electrodes gives a considerably increased muscular contraction by irritating once or repeatedly the cerebral cortex or any nerve. This increase is more marked when there is a homologous combination of currents—*i. e.*, when the poles of the constant current and those of the primary coil meet. Heterogeneous combination gives a weaker and shorter muscular contraction in proportion as the galvanic current increases. A motor nerve exhausted by the action of the individual currents separately is still able to react noticeably to a comparatively weaker but combined current. This is applicable to the white cerebral substance and the motor areas.

Relation between the Physical Quality of the Electric Excitant and Neuro-muscular Reaction.—A. d'Arsonval (*Compt. rend. de soc. de biol.*, May 29, 1891) was enabled to produce neuro-muscular and painful, or muscular only and painless, contraction by varying the physical quality of any electric current used. The duration and variation of the electric potential are the only agents which govern the nerve or muscle response to the excitation. A current of a given duration and quantity of electricity will give a markedly painful contraction of the muscle of the forearm if it is such as to affect both the sensory and motor nerves, but will cause a muscular contraction only without pain if the duration of the current is considerably increased, other things being equal. The current affects, then, the muscular fibers only. The author varies the duration of the current by interposing into the circuit a graduated condenser that enables us to measure the current and to change the physical quality of the electric discharge in order to act specially on the nerve or the muscle.

It is suggested that this contrivance will probably prove of service in gynæcology, as in faradizing the uterus after Tripier's method. By varying the duration of the discharge by means of the introduced resistance in shape of a graduated condenser, one is further enabled to study neuro-muscular degeneration with much more precision than by using alternately the faradaic and galvanic currents.

The Laws of the Production of Heat by Muscular Contraction after Experiments on Isolated Muscles.—M. A. Chauveau (*Arch. de phys. norm. et pathol.*, Jan. 1, 1891) says the foregoing laws have not been clearly understood by his predecessors, and formulates them thus: 1. The degree of muscular contraction is estimated not by the absolute loss in length of the muscle at the moment of its contraction, but by the relation of the lost length to its total length during the period of its rest. 2. This total length in isolated muscles depends upon the degree of fatigue at the time when they are made to lift a weight. 3. A muscle elongated under the influence of fatigue and too heavy a load contracts and develops heat in a less degree than a muscle retaining its normal length and lifting the same load. 4. When an isolated muscle in a condition of relaxation is elongated under the influence of too heavy a load, so that great fatigue is induced, it loses heat; when the cause of elongation is removed and the muscle retracts, it absorbs heat instead of evolving it. 5. This is precisely the reverse of the result of formation of active elasticity; it tends to neutralize the heat produced by active muscular contractility. 6. The favorable conditions for loss of heat are at their maximum when muscular contraction producing positive work follows forced elongation of a fatigued muscle.

The Direct Excitability of the Muscular Fibers by Light.—The only muscular organ known to contract under the influence of light is the iris, as was demonstrated by Brown-Séquard on the iris of an eel separated from the retina. M. A. d'Arsonval (*Compt. rend. soc. de biol.*, May 15, 1891) failed to provoke visible muscular movements by projecting upon a muscle the light of a concentrated voltaic arc by means of a lens; the contractions became slightly visible when the muscle was held under the constant influence of the weakest induced electric current and the above-mentioned concentrated light. The fact was made more demonstrable by utilizing the "telephone muscle" (*Compt. rend. soc. de biol.*, 1885, p. 454). A frog is fixed on a cork board; the end of the tendon of the gastrocnemius is attached to a membrane stretched over a funnel to which is attached a long rubber tube; the end of the latter is put in the ear to receive the sonorous vibrations caused by the muscular movements under the influence of the light. A very convincing device of the author's is the illumination of the muscle at regular intervals by rotating a disc with equidistant perforations which is placed between the muscle and the light, the disc rotating from 300 to 530 times per second. The height of the sound of the muscular vibrations so obtained corresponds exactly to the luminous oscillations. The sonorous vibrations of the muscles cease when the muscle is injured by heat, which shows that the muscular vibrations are not of a purely physical character, as the muscle fails to react when its proper excitability is absent.

On the Influence of Muscular Work on the Elimination of Creatinine.—In accordance with the results of P. Groccho, Dr. J. Moitessier concludes (*Compt. rend. soc. de biol.*, July 16, 1891), from experiments on his own person: 1. After a walk of from fifteen to forty kilometres the amount of creatinine in the urine augments on an average one eighth more than during a day of rest. The amount of uric acid was also increased, but there was no constant relation between the two. Urea was increased, but continued increasing during a day of rest, and it is ascribed to the accentuation of the functions in general, such as respiration, circulation, etc.; the excessive production of creatinine and uric acid depends directly upon the chemical changes in the muscles. 2. The excess of creatinine is eliminated during muscular activity. This is true of the uric acid, and Lagran's belief that uric acid, urates, and extractives are the main factors of fatigue when accumulated in the economy is accepted. 3. To antagonize the fatiguing effect of excessive waste products in the economy, the author used kola nuts, but without any success. 4. The amount of urine was diminished during a day of exercise. Diuretics were used to determine that the creatinine eliminated was the maximum amount; the amount of urine increased, but that of creatinine remained unchanged.

On Cheyne-Stokes Respiration.—E. Wertheimer (*Arch. de physiol. norm. et pathol.*, January, 1891) performed a series of experiments relating to this subject, and, from the collection of tracings of respirations induced by irritating the central end of the vagus, he concludes that the Cheyne-Stokes phenomenon is due to incomplete inhibition of the respiratory center, of either direct or indirect origin. Pathologically, the inhibition is mostly of indirect origin, as in meningitis. Mann's question as to what maintains the rhythm of inhibition (*Jour. of Neurology*, 1890, p. 179) the author answers by citing his experiments in which continuous irritation of the vagus gave a rhythmically intermittent type of respiration. He explains this by saying that the nervous center, having a constant afflux of physiological stimulus, is enabled to overcome the incomplete inhibition and to react. After this exertion the inhibition shows its full action again, but this is overcome by a period of reaction after the power is regained by virtue of the afflux of physiological stimulation. He puts it in Mosso's words by saying that when the equilibrium of the nervous centers is suddenly interrupted, the latter try to recover it after a period of oscillations, during which its excitability augments and diminishes alternately.

A Hæmochromometer of a Series of Standard Colored Glass.—M. L. Malassez (*Compt. rend. soc. de biol.*, June 5, 1891) succeeded, by combining faintly colored glasses of different tint, in getting the colors and intensities exactly similar to those of specimens of blood. The degrees in the color and intensity are obtained by cutting thinner or thicker layers of the glass which forms the combination. For examination white daylight is used; this is obtained either directly from a white cloud or light transmitted through a white screen. The accuracy with which the color of the blood can be estimated by this method is found of importance in estimating the respiratory capacity of the blood.

The Epithelial Covering of the Tubo-ovarian Peritonæum and its Physiological Transformation.—Dr. Morau (*Compt. rend. d. soc. de biol.*, May 29, 1891) observed in a number of animals that, during the period of reproductive function, the epithelial cells of the lining of these organs lose their normal aspect, become globular, are reduced to a finely granular mass containing a large spherical or oval nucleus, and approach very much the embryonic type. Gradually they resume a cylindrical shape and become covered with vibratile cilia, which are moving toward the tubes, and so transmit the ovum. From the pathological standpoint this explains, perhaps, some varieties of peritoneal pregnancy, the more so that, as a rule, those abnormal pregnancies are found where there has been previous pathological alteration of the pelvic peritonæum.

Weight of the Brain, Liver, and Spleen in Dogs of Different Sizes.—Ch. Richet (*Compt. rend. soc. de biol.*, June 5, 1891) reports one hundred and fifty-seven observations on dogs of different sizes, races, and both sexes. From the exhaustive tabulations of the weights of the dogs and their organs it is concluded: 1. That the weight of the liver is proportionate to the body surface, as is the chemical combustion and the caloric radiation, or, as put by the author, each apparatus of nutrition is proportionate to the surface of the body. 2. The brain does not follow the same law, as it comprises a variable quantity, the weight of the brain, and a constant one, the intelligence, both of which must remain within certain limits, whether it be a large or a small dog. There is little difference in the weights of the brains and intelligence in dogs of four and forty pounds, respectively. No positive statement can be made as to the difference in the weight of the brain in male and female dogs. As regards the spleen, it is almost invariably proportionate to the body weight.

The Variation of the Shape of the Sole of the Foot under the Influence of Rest, Upright Position, and Walking.—MM. Ch. Féré and G. Demautké (*Compt. rend. soc. de biol.*, May 29, 1891) obtained casts of feet under the above-named conditions, and found in one patient that was confined to bed for several weeks the plantar vault was reduced from one fourth to one third its usual width. In a number of persons the vaults of the soles were measured before rising in the morning, four hours after upright position, and after four hours' walking; eleven out of eighteen persons presented enlarged soles of the feet after walking; in some the width was one third larger than normal. This has a direct bearing on the pathology of the arch of the foot in connection with different professional duties which require standing for several hours, especially in young subjects whose plantar arch is markedly flexible.

Miscellany.

The Second Triennial Congress of American Physicians and Surgeons will be held in the Grand Army Building, 1412–1414 Pennsylvania Avenue, Washington, D. C., on Tuesday, Wednesday, Thursday, and Friday, September 22d, 23d, 24th, and 25th. We have already published the programmes of some of the component societies. We now give the entire programme as prepared by the secretaries of the congress and of the various societies, together with the lists of officers.

The General Meeting.—*Officers of the Congress:* President, Dr. S. Weir Mitchell, of Philadelphia; Vice-Presidents, *ex officio:* the president of the American Surgical Association, Dr. Claudius H. Mastin, of Mobile; the president of the American Ophthalmological Society, Dr. Hasket Derby, of Boston; the president of the American Otological Society, Dr. Gorham Bacon, of New York; the president of the American Neurological Society, Dr. Wharton Sinkler, of Philadelphia; the president of the American Gynæcological Society, Dr. A. Reeves Jackson, of Chicago; the president of the American Dermatological Association, Dr. Francis B. Greenough, of Boston; the president of the American Laryngological Association, Dr. William C. Glasgow, of St. Louis; the president of the American Climatological Association, Dr. Frederick I. Knight, of Boston; the president of the Association of American Physicians, Dr. William Pepper, of Philadelphia; the president of the American Association of Andrology and Syphilology, Dr. Fessenden N. Otis, of New York; the president of the American Orthopædic Association, Dr. Adoniram B. Judson, of New York; the president of the American Physiological Society, Dr. Henry P. Bowditch, of Boston; the president of the Association of American Anatomists, Dr. Joseph Leidy,* of Philadelphia; and the president of the American Pædiatric Society, Dr. T. M. Rotch, of Boston; Chairman of the Executive Committee, Dr. William Pepper, of Philadelphia; Treasurer, Dr. John S. Billings, of Washington; Secretary, Dr. William H. Carmalt, of New Haven. *Executive Committee:* Dr. William Pepper (chairman), of Philadelphia, representing the Association of American Physicians; Dr. Claudius H. Mastin, of Mobile (*alternate*, Dr. A. Van der Veer, of Albany), representing the American Surgical Association; Dr. John Green, of St. Louis (*alternate*, Dr. D. B. St. John Roosa, of New York), representing the American Ophthalmological Society; Dr. William H. Carmalt, of New Haven (*alternate*, Dr. F. B. Loring, of Washington), representing the American Otological Society; Dr. Landon Carter Gray, of New York (*alternate*, Dr. Charles K. Mills, of Philadelphia), representing the American Neurological Association; Dr. Samuel C. Busey, of Washington, representing the American Gynæcological Society; Dr. George Henry Fox, of New York (*alternate*, Dr. H. W. Stelwagon, of Philadelphia), representing the American Dermatological Association; Dr. Harrison Allen, of Philadelphia (*alternate*, Dr. J. Solis-Cohen, of Philadelphia), representing the American Laryngological Association; Dr. Alfred L. Loomis, of New York (*alternate*, Dr. F. Donaldson, Sr., of Baltimore), representing the American Climatological Association; Dr. Robert W. Taylor, of New York (*alternate*, Dr. Edward L. Keyes, of New York), representing the American Association of Andrology and Syphilology; Dr. Newton M. Shaffer, of New York (*alternate*, Dr. Virgil P. Gibney, of New York), representing the American Orthopædic Association; Dr. Henry P. Bowditch, of Boston (*alternate*, Dr. H. Newell Martin, of Baltimore), representing the American Physiological Society; Dr. F. A. Lucas, of Washington (*alternate*, Dr. D. K. Shute, of Washington), representing the Association of American Anatomists; Dr. A. Jacobi, of New York (*alternate*, Dr. T. M. Rotch, of Boston), representing the American Pædiatric Society. *Committee of Arrangements:* Dr. Samuel C. Busey (chairman), 1545 I Street, N. W., Washington, of the Association of American Physicians; Dr. John S. Billings, Army Medical Museum, Washington, of the American Surgical Association; Dr. Samuel Theobald, 304 Monument Street, Baltimore, of the American Ophthalmological Society; Dr. Samuel O. Richey, 732 Seventeenth Street, N. W., Washington, of the American Otological Society; Dr. Robert K. Edes, 1216 Eighteenth Street, N. W., Washington, of the American Neurological Association; Dr. J. Taber Johnson, 1728 K Street, N. W., Washington, of the American Gynæcological Society; Dr. I. E. Atkinson, 605 Cathedral Street, Baltimore, of the American Dermatological Association; Dr. Samuel Johnston, 204 Monument Street, Baltimore, of the American Laryngological Association; Dr. W. W. Johnston, 1603 K Street, N. W., Washington, of the American Climatological Association; Dr. Charles F. Bevan, 807 Cathedral Street, Baltimore, of the American Association of Andrology and Syphilology; Dr. DeForest Willard, 1818 Chestnut Street, Philadelphia, of the American Orthopædic Association; Dr. H. Newell Martin, Johns Hopkins University, Baltimore, of the American Physiological Society; a representative of the Association of American Anatomists; and Dr. Samuel S. Adams, 1632 K Street, Washington, of the American Pædiatric Society.

Subjects for Report and Discussion.—Tuesday Afternoon, September 22d, at three o'clock, in the Main Hall of the Grand Army Building: Conditions underlying the Infection of Wounds, including a Discussion of Disinfection with reference to the Treatment of Wounds, of the Relation of Bacteria to Suppuration, of the Resistance of Tissues to the Multiplication of Bacteria, and of the Effects of Antiseptic Agents on Wounds (*referee*, Dr. William H. Welch, of Baltimore, professor of pathology in Johns Hopkins University; *co-referee*, Dr. Roswell Park, of Buffalo, professor of surgery in the Buffalo Medical College), followed by a discussion by Dr. Arthur T. Cabot, Dr. Harold Ernst, Dr. Arpad G. Gerster, and others. The discussion will be adjourned if necessary until Friday afternoon. *Wednesday Afternoon, September 23d, at three o'clock*, in the Main Hall of the Grand Army Building: The Late Manifestations of Syphilis (*referee*, Dr. Phineas S. Conner, of Cincinnati, professor of surgery in the Medical College of Ohio; *co-referee*, Dr. Abner Post, of Boston, clinical instructor in syphilis in Harvard University), followed by a discussion by Dr. Robert T. Edes, Dr. J. Nevins Hyde, Dr. J. William White, and others. *Wednesday Evening, September 23d, at eight o'clock*, in the Hall of the National Museum, Smithsonian Grounds: Address by the president, S. Weir Mitchell, M. D., LL. D. (Bolog.), on The History of Instrumental Precision in Medicine. The Army Medical Museum adjacent will be lighted and open for the members and guests at 9 p. m. The president's reception will take place at the National Rifles Armory, No. 910 G Street, at 9.30 p. m. *Thursday Afternoon, September 24th, at three o'clock*, in the Main Hall of the Grand Army Building: Fibroid Processes (Chronic Interstitial Inflammation, Scleroses); their Pathology and Ætiology, with special reference to the Influence of Diathesis and Heredity (*referee*, Dr. Alfred L. Loomis, of New York, professor of pathology and the practice of medicine in the University of the City of New York; *co-referee*, Dr. William Osler, of Baltimore, professor of medicine in

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* Deceased.

Johns Hopkins University), followed by a discussion by Dr. Charles L. Dana, Dr. J. West Roosevelt, Dr. W. T. Councilman, Dr. John Guiteras, and others. *Friday Afternoon, September 25th, at three o'clock:* If necessary the discussion on The Conditions underlying the Infection of Wounds, etc., will be resumed in the Main Hall of the Grand Army Building. The meetings of the congress are open to the profession. The meetings of the individual component societies will be held in the mornings and according to the programme each may provide, as hereinafter appears. Members and guests are requested to register, as soon as possible, at the office of registration, parlors 1 and 2, Arlington Hotel. Ladies of the families of members and guests are cordially invited to the address of the president and to the reception following.

American Surgical Association.—Twelfth annual meeting, to be held in the Main Hall, Grand Army Building.

Officers: President, Dr. Claudius H. Mastin, of Mobile; Vice-Presidents, Dr. J. Collins Warren, of Boston, and Dr. Stephen Smith, of New York; Secretary, Dr. J. R. Weist, of Richmond, Ind.; Treasurer, Dr. P. S. Conner, of Cincinnati; Recorder, Dr. J. Ewing Mears, of Philadelphia; Council, Dr. J. S. Billings, of Washington, Dr. F. S. Dennis, of New York, Dr. W. F. Peck, of Davenport, Ia., and Dr. S. H. Weeks, of Portland, Me.; Chairman of the Committee of Arrangements of the Association, Dr. J. S. Billings, of Washington; Delegate to the Executive Committee of the Congress, Dr. Claudius H. Mastin, of Mobile (*alternate*, Dr. A. Van der Veer, of Albany; Member of the Committee of Arrangements of the Congress, Dr. J. S. Billings, of Washington.

Programme.—Tuesday, September 22d, at 10 A. M.: Roll-call, president's address, executive session. The time for discussion will be limited to ten minutes for each speaker. 1. The Present Status of Brain Surgery, by Dr. D. Hayes Agnew, of Philadelphia (abstract: Observations and Results of Philadelphia Surgeons in Cases of Epilepsy, Traumatic and Jacksonian; Abscess; Hæmorrhage; Hydrocephalus; Microcephalus; Cephalalgia; and Tumors). Discussion by Mr. John Chiene, of Edinburgh, Scotland, Dr. W. W. Keen, of Philadelphia, Dr. C. B. Nancrede, of Ann Arbor, Mich., and Dr. Roswell Park, of Buffalo. 2. Report of the Committee on the Results which should be considered as Satisfactory, of Treatment of Fractures of the Shaft of the Femur, by Dr. Stephen Smith, of New York. *Wednesday, September 23d, at 10 A. M.:* 3. Aseptic and Antiseptic Details in Operative Surgery, by Dr. A. G. Gerster, of New York (abstract: 1. Personal cleanliness and the cleaning of the field of operation are to be accomplished by mechanical procedures rather than disinfectants; soap and brush *versus* chemicals; brushes hotbeds of infection; their cleansing by boiling. 2. Dressing materials to be sterilized by steam; advantages of this plan. 3. Instruments to be sterilized by boiling in soda solution to prevent rusting. 4. Sponges, their cleansing, preservation, substitutes, and use. 5. Technique of operating; advantages of employing few instruments, sponges, and assistants; clean dissection—that is, avoidance of tearing and bruising the tissues; careful hæmostasis; no irrigation except where a special indication arises in the shape of existing or accidental contamination by the fæces, urine, or extraneous filth [as, for instance, in compound fractures]. 6. Drainage by tubes often unnecessary; its substitutes; where the tubes are indispensable. 7. Dressings, their manner of application and reason of efficiency: *a*, moist; *b*, dry, absorbent dressing; *c*, sealing of wounds by collodion. 8. In combating septic morbid processes, mechanical measures—such as incision, drainage, and irrigation—of more importance than the employment of chemicals). Discussion to be opened by Dr. Robert F. Weir, of New York, Dr. J. Collins Warren, of Boston, Dr. J. William White, of Philadelphia, and Dr. Joseph Ransohoff, of Cincinnati, Ohio. 4. The Surgical Treatment of Injuries and Diseases of the Vertebral Column, by Dr. J. William White, of Philadelphia (abstract: *A.* Congenital deformities—spina bifida; review of operative methods. *B.* Tuberculosis of the spine. 1. Indications for operative interference. 2. Cases in which the focus of bony disease may be removed. 3. Relief of paralysis in spinal caries after pointing of a psoas or iliac abscess. 4. Paralysis in Pott's disease generally the result of an external pachymeningitis. 5. Pus to be evacuated whenever accessible; treatment by extension process with plaster jacket; resection. 6. In caries of a portion of the arches with paraplegia, we should almost always operate. 7. Exposure of the cord, if the bodies of the lumbar vertebræ are affected, to relieve pressure and remove diseased bone. 8. Where compression of the cord is thought to be due to anterior pachymeningitis, an operation can rarely liberate it from pressure. *C.* Neoplasms. Amenable to operative interference. *D.* Traumatism. 1. Some objections urged against operative interference in spinal traumatism unsupported by clinical facts; others largely due to well-founded dread of: *a*, shock; *b*, consecutive inflammation. 2. Recent results of operative interference encouraging. 3. Operation contra-indicated where disorganization of the cord is caused by a severe crushing force). Discussion by Dr. Maurice H. Richardson, of Boston, Dr H. H. Mudd, of St. Louis, Dr. John B. Roberts, of Philadelphia, Dr. Charles B. Porter, of Boston, Dr. Robert Abbe, of New York, and Dr. W. W. Keen, of Philadelphia. 5. On Retroperitoneal Abdominal Tumors, and especially those involving the Kidney, by Dr. A. Van der Veer, of Albany (abstract: Tumors—retroperitoneal in their origin, sources, and character; anatomical relations; from retroperitoneal connective tissue and lymphatic glands; from the suprarenal capsule and the capsule of the kidney; they may be present anteriorly between the folds of the mesentery or displace the viscera *en masse*, or posteriorly in the dorsal and lumbar regions; they may be benignant or malignant, cystoma, fibroma, myxoma, sarcoma, or mixed growths. Gross and minute anatomy. *Diagnosis:* Difficulties: Indirect by exclusion, from tumors of the viscera, is often impossible. Use of the aspirator. *Prognosis:* Rapid growth is evidence either of primary malignancy or of secondary degeneration and infiltration. Operative treatment has not been followed by encouraging results. *Treatment:* In what cases, if not all, shall operative treatment be undertaken? Difficulties attending the operation. Intimate connection with the peritonæum, the viscera, and the great vessels. *Résumé*). Discussion by Mr. Reginald Harrison, of London, England, Dr. Robert Abbe, of New York, Dr. William T. Bull, of New York, and Dr. Frederick E. Lange, of New York. *Thursday, September 24th:* Executive session at 10 A. M. 6. Recurrence of Cancer of the Breast, by Dr. Frederic S. Dennis, of New York (abstract: In a study of the cases of carcinoma of the breast only those cases will be utilized in which a thorough microscopical examination has been made by a well-recognized pathologist; all other cases are to be excluded as worthless. The recurrence of carcinoma in the breast is influenced by: 1. The period of time from the first appearance of the growth to the date of the operation. 2. The extent to which infiltration has taken place by any one, or all, of the three well-recognized ways of dissemination. 3. The radical character of the operation itself. 4. The histological character of the carcinoma itself. 5. The appearance simultaneously in both breasts. 6. The personal factors of the individual—such as age, sex, marriage, fecundity, sterility, pregnancy, traumatism, heredity, menstruation, metastasis, mental condition, locality, etc.). Discussion by Mr. Thomas Bryant, of London, England, Dr. Hunter McGuire, of Richmond, Va., Dr. Lewis S. Pilcher, of Brooklyn, Dr. D. Hayes Agnew, of Philadelphia, and Dr. L. McLane Tiffany, of Baltimore. 7. The Treatment of Tuberculosis of Bones and Joints by Parenchymatous and Intra-articular Injections, by Dr. Nicholas Senn, of Milwaukee (abstract: Introduction. 1. Tincture of iodine. 2. Carbolic acid. 3. Arsenious acid. 4. Corrosive sublimate. 5. Phosphate of calcium. 6. Balsam of Peru. 7. Camphorated naphthol. 8. Iodoform; experimental studies; clinical results; immediate and remote dangers; action on tubercular tissue; indications; technique). Discussion by Dr. Lewis A. Stimson, of New York, Dr. John Ashhurst, Jr., of Philadelphia, Dr. Frederick E. Lange, of New York, Dr. A. G. Gerster, of New York, Dr. A. T. Cabot, of Boston, and Dr. D. D. Bramble, of Cincinnati. Members of the American Surgical Association and of the Association of American Physicians will conjointly entertain their foreign guests at the Arlington Hotel at 8 P. M. *Friday, September 25th:* Executive session at 10 A. M. 7. The Treatment of Fractures involving the Elbow Joint, by Dr. Lewis A. Stimson, of New York (abstract: 1. Causes of limitation of motion after recovery; *a*, changes in the relation of the parts of the joint; *b*, overgrowth of bone; *c*, periarticular. 2. Causes of deformity; treatment; reduction; maintenance—elbow flexed, elbow extended; after-treatment). Discussion by Mr. Arthur Edward Durham, of London, England, Dr. D. Hayes Agnew, of Philadelphia, Dr. N. P. Dandridge, of Cincinnati, Dr. R. A. Kinloch, of Charleston, Dr. D W. Yandell, of Louisville, Dr. Stephen Smith, of New York, Dr. E. M. Moore, of Rochester, and Dr. James

McCann, of Pittsburgh. In addition, the following papers are offered and will be read as opportunity offers at the close of each day's programme: 8. Fractures involving the Upper Third of the Femur, exclusive of the Neck, by Dr. Oscar H. Allis, of Philadelphia (abstract: 1. The infrequency renders it improbable that any single observer can speak authoritatively upon the subject. 2. Pathology. A study of the deformity as presented in pathological museums; its uniformity suggests a special agency for its production; an agency suggested at variance with the usually accepted one. 3. Permanent lameness or weakness in the limb not the result of insufficient bone repair; an inquiry into its cause. 4. Deformity in the upper compared with that in the middle and lower thirds. 5. Treatment; inquiry into the defects of prevailing methods; treatment suggested. 6. Faulty professional standard of what constitutes a good cure. 7. Appeal to surgeons for a thorough reopening of this important subject). 9. Thoracic Surgery, by Dr. DeForest Willard, of Philadelphia (abstract: 1. Wounds and injuries of the thorax 2. Tumors of the thorax. 3. Conditions of disease. 4. Pus accumulations). 10. A Case of Diffuse Hypertrophy of the Breasts, with photographs, by Dr. C. B. Porter, of Boston; 11. Fractures of the Bones which form the Elbow Joint, and their Treatment, by Dr. Levi C. Lane, of San Francisco; 12. Old Unreduced Luxations of the Elbow, by Dr. Lewis A. Stimson, of New York; 13. The Study of a Case of Hemiplegia with Aphasia following Ligature of the Common Carotid Artery, by Dr. J. Ewing Mears, of Philadelphia; 14. An Investigation of Pistol-shot Wounds of the Skull, and their Treatment, by Dr. E. H. Bradford, of Boston; 15. The Result of some Experiments in the Filling of Cavities in Bones following Operations for Caries, by Dr. E. H. Bradford, of Boston.

American Ophthalmological Society.—Twenty-seventh annual meeting, to be held at the Arlington Hotel, Ladies' Parlor No. 2, beginning on Wednesday, September 23d, at 10 A. M.

Officers: President, Dr. Hasket Derby, of Boston; Vice-President, Dr. George C. Harlan, of Philadelphia; Corresponding Secretary, Dr. J. G. Prout, of Brooklyn; Recording Secretary and Treasurer, Dr. Samuel B. St. John, of Hartford, Conn.; Delegate to the Executive Committee of the Congress, Dr. John Green, of St. Louis (*alternate*, Dr. D. B. St. J. Roosa, of New York); Member of the Committee of Arrangements, Dr. Samuel Theobald, of Baltimore.

Programme.—Wednesday, September 23d, at 10 A. M.: Papers will take precedence, as near as may be, in the order given, but the length of the daily sessions will be determined by the society at the time. 1. (1) Gouty Retinitis—Neuroretinitis and Chorioretinitis. (2) History of a Case of Brain Tumor with Autopsy. (3) The Operative Treatment of Detachment of the Retina by Schöler's Method, with Report of Five Cases, by Dr. C. S. Bull, of New York; 2. The Use of Vaseline in Gonorrhœal Conjunctivitis, by Dr. F. M. Wilson, of Bridgeport; 3. Case of Orbital Traumatism followed by Immediate Monocular Blindness due to Fracture of the Foramen Opticum, by Dr. P. A. Callan, of New York; 4. The Significance of Macular Changes in Advancing Myopia, by Dr. H. Derby, of Boston; 5. Glaucoma after Extraction of Cataract, by Dr. F. Buller, of Montreal; 6. The Blind of New York City, by Dr. H. S. Oppenheimer, of New York; 7. (1) Additional Experiments to determine the Lesion in Quinine Blindness. (2) A Case of Elephantiasis of the Eyelid. (3) A Case of Acute Glaucoma occurring in an Eye with Coloboma of the Iris and Supernumerary Pupils (the first two papers illustrated by photo-micrographs and microscopic slides), by Dr. G. E. de Schweinitz, of Philadelphia; 8. A Clinical Study of the Ocular Symptoms found in the so-called Mongolian Type of Idiocy, by Dr. C. A. Oliver, of Philadelphia; 9. The Extraction of Foreign Bodies from the Vitreous, by Dr. E. E. Holt, of Portland, Me.; 10. Contributions to the Study of Heterophoria, by Dr. Swan M. Burnett, of Washington; 11. Report of Cases of Cataract Extraction, by Dr. D. Webster, of New York; 12. The Extraction of Foreign Bodies from the Interior of the Eyeball, by Dr. S. B. St. John, of Hartford; 13. A partially Bony Growth of the Orbit—Removal—Recovery, by Dr. B. L. Millikin, of Cleveland; 14. Clinical Studies in Scotoma Scintillans, by Dr. D. De Beck, of Cincinnati; 15. Retinal Vessel Observations in Contusions of the Brain, by Dr. A. G. Heyel, of Philadelphia; 16. (1) Ulcerative Keratitis in the Negro. (2) Eye Complications in *la Grippe*, by Dr. J. A. Andrews, of New York; 17. (1) Subnormal Accommodative Power in Young Persons a not Infrequent Cause of Asthenopia. (2) A Case of Successful Skin Grafting upon the Eyelid by Thiersch's Method. (3) Supplementary Note to the Case of Useful Vision maintained by the Aid of a totally Dislocated Lens, heretofore reported to the Society, by Dr. S. Theobald, of Baltimore; 18. (1) The Occurrence, Prevention, and Management of Prolapse of the Iris in Extraction of Cataract. (2) Demonstration of a Roller Forceps for pressing out Trachomatous Granulations according to the Mangle Principle, by Dr. H. Knapp, of New York; 19. (1) Recurrent Inflammation of Tenon's Capsule of both Eyes in connection with Mercurial Poisoning. (2) Phlegmon of the Orbit in the New-born. (3) Gangrene of the Skin of both Lids in both Eyes, by Dr. C. J. Kipp, of Newark; 20. On the Measurement of Simple and Compound Lenses, by Dr. L. Howe, of Buffalo; 21. Routine Syringing-out of Cortical Matter in Cataract Extraction as illustrated by 100 Cases, by Dr. J. A. Lippincott, of Pittsburgh; 22. Two Cases of Intense Vertigo produced by an Attempted Correction of Astigmatic Refraction, by Dr. George Strawbridge, of Philadelphia.

American Otological Society.—Twenty-fourth annual meeting, to be held at the Arlington Hotel, Ladies' Parlor No. 1, on Tuesday, September 22d, at 10 A. M.

Officers: President, Dr. Gorham Bacon, of New York; Vice-President, Dr. Huntington Richards, of New York; Secretary and Treasurer, Dr. J. J. B. Vermyne, of New Bedford; Delegate to the Executive Committee of the Congress, Dr. William H. Carmalt, of New Haven (*alternate*, Dr. Francis B. Loring, of Washington); Member of the Committee of Arrangements, Dr. S. O. Richey, of Washington.

Programme.—Tuesday, September 22d: Morning session at 10 A. M. Papers will take precedence in the order given; if necessary, an evening session will be held. 1. (1) Some partially Successful Attempts to Promote the Healing of Old Perforations of the Tympanal Membrane. (2) An Unusual Form of Dislocation of the Malleus Handle, by Dr. S. Theobald, of Baltimore; 2. Some unusually Severe Cases of Mastoid Disease in Influenza, by Dr. H. Knapp, of New York; 3. Three Cases of Suppurative Otitis with Complications and One Death, by Dr. F. M. Wilson, of Bridgeport; 4. A Case of Suppuration, Exostosis, and Otitic Epilepsy—Trephining followed by Fatal Septic Meningitis; with a Consideration of Other Specimens illustrating the Avenues of Communication of Otitis to the Brain, by Dr. B. Alexander Randall, of Philadelphia; 5. Notes on the Use of the Leiter Coil in the Early Stage of Mastoid Disease, by Dr. Gorham Bacon, of New York; 6. A paper (title not yet announced), by Dr. C. J. Blake, of Boston; 7. Acute Suppuration of the Middle Ear; Meningitis; Death; Autopsy; no Involvement of the Temporal Bone, by Dr. J. M. Ray, of Louisville; 8. A Concluding Paper on the Anatomy of the Elephant's Ear, by Dr. Huntington Richards, of New York; 9. Excision of the Membrana Tympani and Necrotic Malleus in a Case of Chronic Purulent Otitis Media, by Dr. C. H. Burnett, of Philadelphia.

American Neurological Association.—Seventeenth annual meeting, to be held at the Arlington Hotel, Parlors 182 and 183, on September 22d, 23d, and 24th.

Officers: President, Dr. Wharton Sinkler, of Philadelphia; Vice-Presidents, Dr. C. L. Dana, of New York, and Dr. S. G. Webber, of Boston; Secretary and Treasurer, Dr. Græme M. Hammond, of New York; Councilors, Dr. G. L. Walton, of Boston, and Dr. L. C. Gray, of New York; Delegate to the Executive Committee of the Congress, Dr. Landon Carter Gray, of New York (*alternate*, Dr. Charles K. Mills, of Philadelphia); Member of the Committee of Arrangements, Dr. Robert K. Edes, of Washington.

Programme.—Sessions are held daily from 10 A. M. to 12 M. and from 1 to 3 P. M. 1. A Case of Poliomyelitis Anterior—Death on the Twelfth Day, with the Account of the Microscopic Examination made by Dr. C. W. Burr, by Dr. Wharton Sinkler, of Philadelphia; 2. A Contribution to the Therapeutics of Poliomyelitis, by Dr. V. P. Gibney, of New York; 3. Poliomyelitis Acuta Adultorum, by Dr. W. C. Krauss, of Buffalo; 4. Double Athetosis, by Dr. William Osler, of Baltimore; 5. (1) Report, with Specimens, of a Case of Multiple Neuritis. (2) Case, with Specimens, of Lead-poisoning followed by Locomotor Ataxia, terminating fatally by Uræmia. (3) Exhibition of a Porencephalic Brain. (4) Report of Two Cases of Rare Myoclonic Disorder, by Dr. James Hendric Lloyd, of Philadelphia; 6. (1) A Case of Thomsen's Disease.

(2) Removal of a Neuroma followed by Disappearance of Local Anæsthesia of Fourteen Years' Standing, by Dr. G. L. Walton, of Boston; 7. A Case illustrating the Spinal and Sympathetic Nerve Supply to the Bowel in the Region of the Ileo-cæcal Valve, by Dr. J. T. Eskridge, of Denver; 8. Friedreich's Disease—its Relation to Conducting Paths in the Cord, by Dr. David Inglis, of Detroit; 9. A Subcortical Hæmorrhagic Cyst beneath the Arm and Leg Areas, with Remarks on the Diagnosis of Lesions of the Motor Subcortex, by Dr. Charles K. Mills, of Philadelphia; 10. The Electro-physiology of Reflexes; with a Description of a hitherto unknown Localized Physiological Reflex Phenomenon, by Dr. George W. Jacoby, of New York; 11. A Case of Trephining and Excision of the Cortex for Jacksonian Epilepsy, by Dr. W. W. Keen and Dr. Charles K. Mills, of Philadelphia; 12. The Diagnosis of Certain Forms of Intracranial Syphilis, by Dr. Landon Carter Gray, of New York; 13. Syphilis of the Spinal Cord, by Dr. Philip Zenner, of Cincinnati; 14. Lead-poisoning, with Special Reference to the Spinal Cord and to Peripheral Nerve Lesions, by Dr. E. D. Fisher, of New York; 15. Triple Personality, by Dr. Irving C. Rosse, of Washington; 16. A Case of Glosso-labio-laryngeal Paralysis, with a Presentation of Specimens, by Dr. Græme M. Hammond, of New York; 17. The Virile Reflex in Relation to Clinical and Forensic Neurology, by Dr. C. H. Hughes, of St. Louis; 18. (1) Facial Hemi-hypertrophy. (2) Five Recent Cases of Brain Surgery, by Dr. William A. Hammond, of Washington; 19. A Case of Tumor of the Cerebellum in which Trephining was done for the Relief of Pressure, by Dr. Philip Coombs Knapp, of Boston; 20. Lithæmia considered in its Relation to Nervous Phenomena, by Dr. C. Eugene Riggs, of St. Paul. The association will give a dinner at the Hotel Arno on Thursday evening.

American Gynæcological Society.—Sixteenth annual meeting, to be held in the lecture room of the Columbian University (corner of Fifteenth and H Streets), on September 22d, 23d, and 24th.

Officers.—President, Dr. A. Reeves Jackson, of Chicago; Vice-Presidents, Dr. Joseph Taber Johnson, of Washington, and Dr. William H. Baker, of Boston; Secretary, Dr. Henry C. Coe, of New York; Treasurer, Dr. Matthew D. Mann, of Buffalo; other Members of the Council, Dr. William M. Polk, of New York, Dr. H. P. C. Wilson, of Baltimore, Dr. Francis H. Davenport, of Boston, and Dr. E. C. Dudley, of Chicago; Delegate to the Executive Committee of the Congress, Dr. Samuel C. Busey, of Washington; Member of the Committee of Arrangements, Dr. J. Taber Johnson, of Washington.

Programme.—Tuesday, September 22d: Morning session at 9·30 o'clock. Roll-call. Reception of guests, etc. Address of welcome, by Dr. Joseph Taber Johnson, of Washington. Papers: 1. The Advantages of Mixed Anæsthesia in Gynæcological Surgery, by Dr. John R. Reeve, of Dayton, O.; 2. Concealed Accidental Hæmorrhage during Labor, by Dr. Henry C. Coe, of New York; 3. Diffuse Adenoma of the Uterine Body, by Dr. James R. Chadwick, of Boston; 4. The Influence of Season on Recurrent Pelvic Inflammations, by Dr. Frank P. Foster, of New York; 5. The Therapeutic Aspect of some Ovarian Disorders, by Dr. Edward W. Jenks, of Detroit. Adjournment at 1 P. M. Afternoon session at 2.30 o'clock. 6. Insanity following Laparotomy, by Dr. J. M. Baldy, of Philadelphia; 7. Vaginal Hysterectomy by *Morcellement:* Technique and Indications for the Operation, by Dr. Samuel Pozzi, of Paris, France; 8. A Clinical Study of Primary Carcinomatous and Sarcomatous Neoplasms between the Layers of the Broad Ligament, with Report of Cases, by Dr. Joseph E. Janvrin, of New York; 9. The Present and Improving Status of Cæsarean Surgery, by Dr. Robert P. Harris, of Philadelphia; 10. A Unique Case of Multiple Neuro-lipomata following Laparotomy, by Dr. H. Marion Sims, of New York. Adjournment at 5.30 P. M. *Wednesday, September 23d:* Morning session at 9.30 o'clock. 11. The president's address; 12. The Treatment of Cancer of the Cervix Uteri by High Amputation; Second Series of Cases, with an Additional Report on the First Series, by Dr. William H. Baker, of Boston; 13. The Advantages of Delivery in the Left Lateral Posture, by Dr. Henry J. Garrigues, of New York; 14. The Influence of Imperfect Development as a Cause of Uterine Disease, by Dr. W. Gill Wylie, of New York; 15. The Technique of Vaginal Fixation of the Stump in Abdominal Hysterectomy, by Dr. Henry T. Byford, of Chicago; 16. Can we avoid Mural Abscesses and Ventral Hernia after Laparotomy? by Dr. Horace T. Hanks, of New York. Adjournment at 1 P. M. Afternoon session at 2.30 o'clock. 17. Some Clinical Testimony as to the Ultimate Results of Removal of the Uterine Appendages, by Dr. Thaddeus A. Reamy, of Cincinnati; 18. Indications for Abdominal Section in the Treatment of Puerperal Pelvic Inflammations, by Dr. R. B. Maury, of Memphis; 19. A Study Relative to the Functions of the Reproductive Organs in American Indian Women, by Dr. Andrew F. Currier, of New York; 20. The Immediate Closure of Laceration of the Cervix, by Dr. Cornelius Kollock, of Cheraw, S. C.; 21. The Conservative Treatment of Pelvic Tumors and Diseases, by Dr. Eugene Gehrung, of St. Louis; 22. The Anatomical Relations of the Lacerated Perinæum to the Mechanics of its Causation, by Dr. Edward Reynolds, of Boston. Business meeting with closed doors at 8 P. M. *Thursday, September 24th:* Morning session at 9.30 o'clock. 23. In Memoriam—Fordyce Barker, M. D., by Dr. James R. Chadwick, of Boston; 24. Ureteritis in the Female, by Dr. Matthew D. Mann, of Buffalo; 25. The Surgical Treatment of Retroversion and Prolapse of the Uterus, by Dr. Paul F. Mundé, of New York; 26. A paper by Dr. Theophilus Parvin, of Philadelphia; 27. A Series of One Hundred Laparotomies; My Mistakes and Failures, by Dr. A. Palmer Dudley, of New York. Adjournment at 1 P. M. Afternoon session at 2.30 o'clock. 28. Laparotomy in Trendelenburg's Posture, with Exhibition of a New Operating Table, by Dr. Clement Cleveland, of New York; 29. The Electrical Treatment of Uterine Fibroids in England, by Dr. George Keith, of Brooklyn; 30. Diabetes Mellitus Gravidarum, by Dr. Henry D. Fry, of Washington; 31. A Successful Porro Operation, by Dr. R. Stansbury Sutton, of Pittsburgh; 32. An Argument against the Stem-pessary, or So-called Drain-tube, by Dr. Egbert H. Grandin, of New York. There will be a lunch at the Arlington Hotel each day after the morning session for the fellows and invited guests. The society will give a dinner at the Arlington Hotel on Thursday evening.

American Dermatological Association.—Fifteenth annual meeting, to be held at the Shoreham Hotel.

Officers.—President, Dr. F. B. Greenough, of Boston; Vice-President, Dr. L. N. Denslow, of St. Paul; Secretary and Treasurer, Dr. George Thomas Jackson, of New York; Delegate to the Executive Committee of the Congress, Dr. George Henry Fox, of New York (*alternate*, Dr. H. W. Stelwagon, of Philadelphia); Member of the Committee of Arrangements, Dr. I. E. Atkinson, of Baltimore.

Programme.—Tuesday, September 22d: Business meeting (with closed doors) at 9.30 A. M. Report of council. Nomination of officers for the ensuing year. Appointment of auditing committee. Proposals for active and honorary membership. Miscellaneous business. Morning session at 10.30 o'clock. Address by the president. Report of committee on nomenclature, and discussion thereon. Papers: 1. Dermatitis Hæmostatica, by Dr. H. G. Klotz, of New York; 2. A Case of Lupus Erythematosus with Fatal Complications, by Dr. W. A. Hardaway, of St. Louis; 3. Report of a Case of Universal Erythema Multiforme, with Colored Portrait and Specimen, by Dr. L. A. Duhring, of Philadelphia; 4. An Unusual Case of Sarcoma involving the Skin of the Arm; Amputation; Recovery, by Dr. F. J. Shepherd, of Montreal; 5. Multiple Sarcomata; History of a Case showing Modification and Amelioration of Symptoms with Large Doses of Arsenic, by Dr. S. Sherwell, of Brooklyn; 6. The Hypodermic Use of Hydrargyrum Formamidatum in Syphilis, by Dr. R. B. Morison, of Baltimore. This association and the American Association of Andrology and Syphilology will conjointly give a dinner on Tuesday evening, September 22d. *Wednesday, September 23d:* Business meeting (with closed doors) at 9.30 A. M. Report of treasurer and auditing committee. Election of officers. Election of active and honorary members. Selection of time and place of next meeting. Miscellaneous business. Morning session at 10.30 o'clock. Papers: Discussion on Tuberculosis of the Skin: 7. Its Clinical Aspects and Relations, by Dr. J. C. White, of Boston; 8. Its Pathology, by Dr. J. T. Bowen, of Boston; 9. Its Treatment, by Dr. G. H. Fox, of New York; 10. Thirteen Cases of Tuberculosis of the Skin, with their Treatment, by Dr. J. S. Howe, of Boston; 11. A Case of Lichen Scrofulosorum, by Dr. J. Grindon, of St. Louis; 12. Notes of a Visit to the Leper Hospital at San Remo, Italy, with Photographs, by Dr. L. A. Duhring, of Philadelphia; 13. Retarded Hereditary Syphilis, by Dr. R. B. Morison, of Baltimore. *Thursday, September 24th:* Morning session at 9.30 o'clock. Papers: 14. The Treatment of Alopecia Areata, by Dr. P. A. Morrow, of New York; 15. A Therapeutic Note on Alopecia Areata, by L. D. Bulkley, of New York; 16. Morphia Atrophica of Wilson, by Dr. R. W. Taylor, of New York; 17. The Treatment of Pruritus, by Dr. E. D. Bronson, of New York; 18. Prairie Itch, by Dr. L. N. Denslow, of St. Paul; 19. Diseases of the Skin associated with Derangements of the Nervous System, by Dr. W. T. Corlett, of Cleveland; 20. The Treatment of Chronic Ringworm in an Institution for Boys, by Dr. L. A. Duhring, of Philadelphia; 21. Epilation: Its Range of Usefulness as a Dermato-therapeutic Measure, by Dr. J. Zeisler, of Chicago. *Friday, September 25th:* Morning session at 9.30 o'clock. Papers: 22. Notes on a Case of Acute Dermatitis Exfoliativa, by Dr. J. E. Graham, of Toronto; 23. Note Relative to Pemphigus Vegetans, by Dr. J. N. Hyde, of Chicago; 24. A Study of Mycosis Fungoides, with Report of a Case, by Dr. H. W. Stelwagon, of Philadelphia, and Dr. H. Leffingwell Hatch; 25. Lymphangeioma Circumscriptum, with Report of a Case, by Dr. M. B. Hartzell, of Philadelphia; 26. Remarks on Carbuncle, with Report of a Peculiar Case, by Dr. H. G. Klotz, of New York; 27. Note on Erythema et Nævus Nuchæ, by Dr. C. W. Allen, of New York; 28. A Case of Lichen Ruber, by Dr. J. Grindon, of St. Louis; 29. The Personal Equation in Dermatology, by Dr. L. D. Bulkley, of New York. Retirement of old officers and induction of those newly elected. Adjournment.

American Laryngological Association.—Thirteenth annual congress, to be held at the Arlington Hotel, Parlor A.

Officers.—President, Dr. W. C. Glasgow, of St. Louis; First Vice-President, Dr. John O. Roe, of Rochester; Second Vice-President, Dr. J. H. Hartman, of Baltimore; Secretary and Treasurer, Dr. Charles H. Knight, of New York; Librarian, Dr. Thomas R. French, of Brooklyn; Council, Dr. George M. Lefferts, of New York, Dr. Frederick I. Knight, of Boston, Dr. D. Bryson Delavan, of New York, and Dr. Harrison Allen, of Philadelphia; Delegate to the Executive Committee of the Congress, Dr. Harrison Allen, of Philadelphia (*alternate*, Dr. J. Solis-Cohen, of Philadelphia); Member of the Committee of Arrangements, Dr. Samuel Johnston, of Baltimore.

Programme.—Tuesday, September 22d: Session at 10 a. m. Roll-call. Reception of guests. President's address, by Dr. W. C. Glasgow, of St. Louis. Papers: 1. A Case of Foreign Body in the Trachea, by Dr. W. C. Glasgow, of St. Louis; 2. A Case of Thyreotomy in a Child Eighteen Months Old, by Dr. Clinton Wagner, of New York; 3. The Tonsil in Health and Disease, by Dr. Harrison Allen, of Philadelphia; 4. Some of the Uses of Pyoctanin in Diseases of the Upper Air-passages, by Dr. R. P. Lincoln, of New York. Election of fellows. Appointment of nominating and auditing committees. Presentation of instruments. *Wednesday, September 23d:* Session at 10 a. m. Business meeting (open to fellows of the association only). 1. Report of the secretary. 2. Report of the treasurer and auditing committee. 3. Report of the librarian. 4. Report of the committee on nominations for 1891-'92. 5. Miscellaneous business. At 11 a. m. the doors will be opened and the reading of papers commenced. 5. Nasal Papillomata, by Dr. Jonathan Wright of Brooklyn; 6. Three Obscure Cases of Syphilis of the Nose, by Dr. C. H. Knight, of New York; 7. Various Forms of Disease of the Ethmoid Cells, by Dr. F. H. Bosworth, of New York; 8. The Troublesome Symptoms caused by Enlargement of the Epiglottis, and the Advisability of reducing the Size of this Cartilage by Operative Measures, by Dr. Clarence C. Rice, of New York. *Thursday, September 24th:* Session at 10 a. m. 9. Useful Deductions derived from the Study of a Case of Cicatricial Contraction of the Larynx possessing Unusual Clinical Features, with Exhibition of Specimen, by Dr. William C. Jarvis, of New York; 10. The Laryngo-tracheal Neoplasms of Tuberculosis, by Dr. John N. Mackenzie, of Baltimore; 11. Observations on Paralysis of the External Tensors of the Vocal Cords, by Dr. George W. Major, of Montreal; 12. The Surgical Treatment of Tubercular Laryngitis, by Dr. D. Bryson Delavan, of New York. Annual dinner at the Arno at 7 p. m.

American Climatological Association.—Eighth annual meeting, to be held in Hall No. 2, Grand Army Building.

Officers.—President, Dr. Frederick I. Knight, of Boston; Vice-Presidents, Dr. E. L. Trudeau, of Saranac Lake, N. Y., and Dr. F. S. Hopkins, of Thomasville, Ga.; Secretary and Treasurer, Dr. J. B. Walker, of Philadelphia; Council, Dr. F. C. Shattuck, of Boston, Dr. R. G. Curtin, of Philadelphia, Dr. E. L. Shurly, of Detroit, Dr. S. G. Solly, of Colorado Springs, and Dr. A. L. Loomis, of New York; Delegate to the Executive Committee of the Congress, Dr. A. L. Loomis, of New York (*alternate*, Dr. F. Donaldson, of Baltimore); Member of the Committee of Arrangements, Dr. W. W. Johnston, of Washington.

Programme.—Tuesday, September 22d, 10 A. M.: 1. The President's address, by Dr. Frederick I. Knight, of Boston; 2. The Medical Treatment of Pleuritic Effusions, by Dr. G. M. Garland, of Boston; 3. The Surgical Treatment of Acute and Chronic Empyema, by Dr. Maurice H. Richardson, of Boston; 4. The Drainage of Pulmonary Cavities, by Dr. Charles Denison, of Denver; 5. Notes on General *vs.* Local Treatment of Catarrhal Inflammations of the Upper Air Tract, by Beverley Robinson, of New York; 6. Gymnastic Exercise as a Prophylactic and Remedy in Chest Diseases, by Dr. E. O. Otis, of Boston; 7. Whooping-cough and its Management; the Difficulties of Climatic Treatment, by Dr. J. H. Musser, of Philadelphia; 8. The Effect of Change of Posture upon Heart Murmurs, by Dr. V. Y. Bowditch, of Boston; 9. Nervo-vascular Disturbances in the Unacclimated in Colorado, by Dr. J. T. Eskridge, of Denver. Appointment of committee on nomination of officers for 1892. *Wednesday, September 23d, 10 A. M.:* 10. A Study of the Sputum in Pulmonary Consumption, by Dr. E. L. Shurly, of Detroit; 11. Further Considerations of the Analysis of Recorded Cases of Phthisis Pulmonalis, by Dr. S. A. Fisk, of Denver; 12. The Histological Changes which take place in the Lungs in Cured Phthisis, and the Influence of Diatheses in the Development of such Changes, by Dr. Alfred L. Loomis, of New York; 13. Lymphatism, by Dr. F. H. Bosworth, of New York; 14. The Use of Creasote in Pulmonary Disease, by Dr. W. C. Glasgow, of St. Louis; 15. The Limitations of Bacteriological Therapeutics, with especial reference to Tuberculosis of the Lungs, by Dr. E. P. Hurd, of Newburyport; 16. Attempts to Discover Specifics for Phthisis, by Dr. H. F. Williams, of Brooklyn; 17. The Value of Koch's Remedy employed as an Alterative: Reactive Fever prevented, by Dr. Frank Fremont Smith, of St. Augustine, Fla. Report of nominating committee. *Thursday, September 24th, 10 A. M.:* 18. The Epidemiology of *la Grippe*, by Dr. R. G. Curtin and Dr. E. W. Watson, of Philadelphia; 19. Reports on the late Epidemic of *la Grippe*, by Dr. John C. Monro, of Boston, Dr. A. A. Smith, of New York, Dr. Roland G. Curtin and Dr. E. W. Watson, of Philadelphia, Dr. R. J. Nunn, of Savannah, Dr. E. Fletcher Ingals, of Chicago, Dr. Henry B. Baker, of Lansing, Dr. J. C. Mulhall, of St. Louis, and Dr. Charles Denison, of Denver. Business meeting, 1 p. m. Minutes of the last meeting. Treasurer's report. Unfinished or deferred business. New business. Election of officers. A banquet will be given on Thursday evening. *Friday, September 25th, 10 A. M.:* 20. An Experience with Diphtheria at a High Altitude, by Dr. W. A. Jayne, of Georgetown, Col.; 21. The Pretubercular Condition, by Dr. J. H. Tyndale, of New York; 22. The Early Diagnosis and Treatment of Phthisis, by Dr. R. C. M. Page, of New York; 23. The Ætiological and Therapeutic Relations of the Different Forms of Tubercular Disease to the Climate of High Altitudes, by Dr. H. B. Moore, of Colorado Springs; 24. The Waters of Richfield Springs, by Dr. C. C. Ransom, of Richfield Springs, N. Y.; 25. The Effects of Climate in the Treatment of Chronic Diarrhœa, by Dr. W. W. Johnston, of Washington; 26. The Climate of the Hawaiian Islands, by Dr. T. Munson Coan, of New York; 27. Notes on Laryngeal Phthisis in Colorado, by Dr. H. M. Wilson, Jr., of Denver.

Association of American Physicians.—Sixth annual meeting, to be held in Hall No. 1, Grand Army Building.

Officers.—President, Dr. William Pepper, of Philadelphia; Vice-President, Dr. Henry M. Lyman, of Chicago; Recorder, Dr. I. Minis Hays, of Philadelphia; Secretary, Dr. Henry Hun, of Albany; Treasurer, Dr. W. W. Johnston, of Washington; Council, Dr. Frederick C. Shattuck, of Boston, Dr. Samuel C. Busey, of Washington, Dr. William H. Welch, of Baltimore, Dr. William Pepper, of Philadelphia, Dr. George L. Peabody, of New York, and Dr. G. Baumgarten, of St. Louis; Delegate to the Executive Committee of the Congress, Dr. William Pepper, of Philadelphia; Member of the Committee of Arrangements, Dr. Samuel C. Busey, of Washington (*chairman*).

Programme.—Tuesday, September 22d, 10 A. M.: 1. President's address, by Dr. William Pepper, of Philadelphia; 2. General business, reports, etc.; 3. Discussion on the Treatment of Visceral Tuberculosis by Koch's Method. Reports by Dr. F. P. Kinnicut, of New York, Dr. Harold C. Ernst, of Boston, Dr. William Osler, of Baltimore, and Dr. Musser and Dr. Griffiths, of Philadelphia; 4. The Climate of Southern California for Respiratory Diseases—a preliminary paper, by Dr. Norman Bridge, of Los Angeles, Cal.; 5. Experimental Studies on the Causes of the Localization of Pulmonary Phthisis and certain other Infectious Diseases of the Lungs, by Dr. J. W. Roosevelt, of New York. *Wednesday, September 23d, 10 A. M.:* 6. Discussion on the Remote Results of the Removal of the Ovaries and Tubes (*referee*, Dr. William T. Lusk, of New York; *co-referee*, Dr. Wharton Sinkler, of Philadelphia); 7. Nerve-stretching in Inveterate Cases of Trigeminal Neuralgia, by Dr. James Stewart, of Montreal; 8. On the Diseases of the Kidney popularly called "Bright's Disease," by Dr. Francis Delafield, of New York; 9. Note on the Recognition of Certain Cases of Epilepsy accompanied by Albuminuria which might be mistaken for Cases of Uræmic Convulsions, by Dr. James Tyson, of Philadelphia; 10. Bradycardia in Acute Articular Rheumatism, by Dr. I. E. Atkinson, of Baltimore. *Thursday, September 24th, 10 A. M.:* 11. Discussion on the Relations between Arterial Disease and Visceral Changes (*referee*, Dr. George L. Peabody, of New York; *co-referee*, Dr. W. T. Councilman, of Baltimore); 12. Intestinal Perforation in Typhoid Fever, by Dr. R. H. Fitz, of Boston; 13. The Relation of Drinking-water to Disease, by Dr. Henry P. Walcott, of Cambridge, Mass.; 14. A Contribution to the Pathology of Pernicious Anæmia, by Dr. J. P. Crozier Griffith and Dr. Charles W. Burr, of Philadelphia; 15. On Changes in the Red Blood-corpuscles in the Pernicious Anæmia of Texas Cattle Fever (by invitation), by Dr. Theobald Smith, of Washington. Members of this association and of the American Surgical Association will conjointly entertain their foreign guests at a dinner at the Arlington Hotel on Thursday evening, September 24th. *Friday, September 25th, 10 A. M.:* 16. The Condition and Prospects of the Library of the Surgeon-General's Office, and its Index Catalogue, by Dr. John S. Billings, of Washington; 17. Sequel to a Case of Slow Pulse (Purdy), by Dr. D. W. Prentiss, of Washington (report of autopsy, by Dr. Robert T. Edes, of Washington); 18. Grave Forms of Purpura Hæmorrhagica, by Dr. J. H. Musser, of Philadelphia; 19. The Pathological Histology of Acute and Chronic Appendicitis, by Dr. William F. Whitney, of Boston; 20. The Treatment of Typhoid Fever by Systematic Cold Bathing, by Dr. James C. Wilson, of Philadelphia; 21. Concluding business. Dr. James G. Glover and Dr. William M. Ord, of London; Dr. McCall Anderson and Dr. W. T. Gairdner, of Glasgow; Dr. J. Battey Tuke, of Edinburgh; Professor Curschmann, of Leipsic; and Dr. Löwenberg, of Paris, have already accepted the invitation of the association to attend the congress, and will be the guests of the association, and will participate in the discussions of the papers read before it.

American Association of Andrology and Syphilology.—Fifth annual meeting, to be held at the Shoreham Hotel.

Officers.—President, Dr. Fessenden N. Otis, of New York; Vice-President, Dr. Arthur T. Cabot, of Boston; Secretary, Dr. John A. Fordyce, of New York; Members of the Council, Dr. John P. Bryson, of St. Louis, Dr. Robert W. Taylor, of New York, together with the officers of the association; Delegate to the Executive Committee of the Congress, Dr. Robert W. Taylor, of New York (*alternate*, Dr. Edward L. Keyes, of New York); Member of the Committee of Arrangements, Dr. C. F. Bevan, of Baltimore.

Programme.—Tuesday, September 22d: Business meeting at 9 A. M. 1. Reading of minutes. 2. Report of council. 3. Report of committees. 4. Election of nominating committee. 5. Appointment of auditing committee. 6. Proposals in writing for membership. 7. Miscellaneous business. Morning session at 10 o'clock. 1. A Review of the Evidence of the Transmission of Syphilis to the Third Generation, by Dr. Abner Post, of Boston; 2. The Relation of Syphilis to Stricture of the Rectum, by Dr. Robert W. Taylor, of New York; 3. Observations upon the Syphilitic Cachexia, by Dr. J. Blake White, of New York; 4. The Abortive Treatment of Syphilis, by Dr. J. William White, of Philadelphia; 5. On the Occurrence of Nephritis in Syphilis, by Dr. John A. Fordyce, of New York. This association and the American Dermatological Association will conjointly give a dinner on Tuesday evening, September 22d. *Wednesday, September 23d:* Business meeting at 9 A. M. 1. Report of the treasurer and auditing committee. 2. Report of nominating committee and election of officers. 3. Election of members. 4. Selection of time and place for next meeting. 5. Miscellaneous business. Morning session at 10 o'clock. 6. Some Experience with Suprapubic and Perineal Drainage, Temporary and Permanent, in Vesical Disease, by Dr. Edward L. Keyes, of New York; 7. A Contribution to the Surgical Treatment of Ruptures of the Bladder, by Dr. Arthur T. Cabot, of Boston; 8. On the Use of Salicylic Acid in the Treatment of Certain Forms of Cystitis, by Dr. John P. Bryson, of St. Louis; 9. Undetected Stone, by Dr. William H. Hingston, of Montreal; 10. Spontaneous Fracture of Stone in the Bladder, by Dr. Francis S. Watson, of Boston; 11. Encysted Stone, complicated with Growths of the Bladder, by Dr. C. H. Mastin, of Mobile; 12. The Treatment of Vesical Calculus in Male Children, by Dr. J. William White, of Philadelphia. *Thursday, September 24th:* Business meeting at 9 A. M. Miscellaneous business. Morning session at 10 o'clock. 13. Further Report of a Case of Tubercular Cystitis, by Dr. L. Bolton Bangs, of New York; 14. A Case of Excision of Stricture and Urethroplasty for Radical Cure, by Dr. Edward L. Keyes, of New York; 15. Clinical Notes on (1) Hypertrophy of the Prostatic Sphincter; (2) the Relation of Rectal Distention to Arterial Depression, by Dr. William T. Belfield, of Chicago; 16. Stricture of the Ureters, by Dr. Francis S. Watson, of Boston; 17. Observations upon the Surgery of the Ureter, by Dr. Arthur T. Cabot, of Boston; 18. Exhibition of Complete Double Ureters of Both Kidneys, by Dr. Edmund E. King, of Toronto. *Friday, September 25th:* Morning session at 9.30 o'clock. 19. On the Radical Cure of Urethral Stricture by Restoration of the Mucous Membrane to a Healthy Condition, by Dr. John P. Bryson, of St. Louis; 20. An Obscure Case of Chronic Non-specific Urethritis of Sixteen Years' Standing, by Dr. George E. Brewer, of New York; 21. The Treatment of Urethral Stricture and its Resulting Conditions by Excessive Local Distention and without Cutting, including a Brief Report of Fifty Cases, by Dr. James P. Tuttle, of New York; 22. New Methods for the Treatment of Urethral Disease effected by the Use of the Speculum, by Dr. F. Tilden Brown, of New York; 23. The Treatment of Gonorrhœa, by Dr. W. Frank Glenn, of Nashville; 24. The Dry Poultice in the Treatment of Epididymitis, by Dr. George E. Brewer, of New York; 25. Exhibition of an Antiseptic Syringe for Hypodermic Medication, by Dr. J. Blake White, of New York. Retirement of old and induction of newly elected officers. Adjournment.

American Orthopædic Association.—Fifth annual meeting, to be held in the new reception room of the Arlington Hotel.

Officers.—President, Dr. A. B. Judson, of New York; Vice-Presidents, Dr. ApMorgan Vance, of Louisville, and Dr. George W. Ryan, of Cincinnati; Corresponding Secretary, Dr. Samuel Ketch, of New York; Secretary and Treasurer, Dr. John Ridlon, of New York; Committee on Membership, Dr. E. H. Bradford, of Boston, Dr. Arthur J. Gillette, of St. Paul, Dr. Samuel Ketch, of New York, Dr. Benjamin Lee, of Philadelphia, and Dr. L. A. Weigel, of Rochester; Delegate to the Executive Committee of the Congress, Dr. N. M. Shaffer, of New York (*alternate*, Dr. V. P. Gibney, of New York); Member of the Committee of Arrangements, Dr. DeForest Willard, of Philadelphia.

Programme.—Tuesday, September 22d: The association will be called to order daily at 9 A. M. Recess from 12 to 12.30 P. M. Adjournment at 2 P. M., or in time for the meeting of the congress at 3 P. M. Exhibition of apparatus at the close of each day. 1. The President's Address, by Dr. A. B. Judson, of New York; 2. The Orthopædic Work of the late Mr. Thomas, by Dr. A. J. Steele, of St. Louis; 3. Uniform Nomenclature in Orthopædic Surgery, by Dr. W. R. Townsend, of New York; 4. Two Cases of a Peculiar Type of Primary Crural Asymmetry, by Dr. Henry Ling Taylor, of New York; 5. On the Best Means of preventing a Loose Joint or Dangling Limb after Resection at the Shoulder Joint, with an Illustrative Case, by Dr. W. R. Whitehead, of Denver; 6. A Case of Spina Bifida with Partial Motor and Sensory Paralysis, Double Equino-varus, and Purulent Bursitis, by Dr. H. Augustus Wilson, of Philadelphia; 7. Congenital Club-foot with Absence of the Great Toe and the Contiguous Bones of the Instep, by Dr. T. M. L. Chrystie, of New York; 8. A Case of Club-foot, Club-hand, and Multiple Joint Deformity, by Dr. William E. Wirt, of Cleveland; 9. On the Use of the Wrench in the Treatment of Club-foot, by

Mr. Robert Jones, of Liverpool, England; 10. Operation upon the Concave Surface in Talipes Equino-varus, by Dr. B. E. McKenzie, of Toronto; 11. The After-treatment of Excision of the Knee Joint, by Dr. John C. Schapps, of Brooklyn; 12. Gonorrhœal Rheumatism and its Treatment, Primary and Secondary, by Mr. B. E. Brodhurst, of London, England; 13. Atrophy in Joint Disease, by Dr. E. G. Brackett, of Boston; 14. The Diagnostic and Prognostic Value of High Temperature in Chronic Joint Disease, by Dr. Robert W. Lovett, of Boston; 15. On the Tests for Recovery from Joint Disease, by Mr. Robert Jones, of Liverpool, England; 16. Apparatus for making Traction, by Dr. Willliam E. Wirt, of Cleveland; 17. Some Lateral-traction Fixation Hip Splints, by Dr. A. M. Phelps, of New York. *Wednesday, September 23d:* 18. Rhachitis in Adolescence, by Dr. Bernard Bartow, of Buffalo; 19. The Aspirator in Orthopædic Practice, by Dr. ApMorgan Vance, of Louisville; 20. Congenital Misplacement of the Hip, with New Apparatus for its Treatment, by Dr. A. M. Phelps, of New York; 21. A Study of Atrophies, by Dr. Roswell Park, of Buffalo; 22. The Diagnosis of Pott's Disease, by Dr. Robert W. Lovett, of Boston; 23. The Differential Diagnosis in Pott's Disease, by Dr. G. W. Ryan, of Cincinnati; 24. Syphilitic Pott's Disease in Children, by Dr. John Ridlon, of New York; 25. Pott's Disease and Pregnancy, by Dr. T. Halsted Myers, of New York; 26. Paraplegia in Pott's Disease, by Dr. E. G. Brackett, of Boston; 27. Pressure Myelitis in Pott's Disease, by Dr. Albert Hoffa, of Würzburg, Germany; 28. Abscesses in Pott's Disease, by Dr. Herbert L. Burrell, of Boston; 29. Abscesses in Pott's Disease, by Dr. W. R. Townsend, of New York; 30. The Evacuation of Spinal Abscesses without Drainage, by Mr. George Arthur Wright, of Manchester, England; 31. Bilateral Lumbar Abscess, with a Case, by Dr. James K. Young, of Philadelphia; 32. The Benign Course of Abscesses in Pott's Disease under Efficient Mechanical Treatment, by Dr. Newton M. Shaffer, of New York; 33. The Value of Mechanical Treatment in Old and Neglected Cases of Pott's Disease, by Dr. Henry Ling Taylor, of New York; 34. The Mechanical Treatment of Pott's Disease, with an Exhibition of Apparatus, by Dr. A. M. Phelps, of New York. *Thursday, September 24th:* 35. Malignant Disease of the Vertebræ simulating Pott's Disease, by Dr. A. B. Judson, of New York; 36. Paralysis in Pott's Disease, by Dr. Charles L. Scudder, of Boston; 37. Prognosis in Pott's Disease, by Dr. Samuel Ketch, of New York; 38. A Proposed Treatment of Pott's Disease by wiring the Vertebral Processes, by Dr. B. E. Hadra, of Galveston; 39. The Operative Treatment in Spinal Caries, by Dr. DeForest Willard, of Philadelphia; 40. The Treatment of Pott's Disease, with Special Reference to the Early Stage, by Dr. Bernard Bartow, of Buffalo; 41. Pott's Disease in Adults, by Dr. A. J. Steele, of St. Louis; 42. Pott's Disease in Middle and Advanced Life, by Mr. Howard Marsh, of London, England; 43. Cervical Spondylitis, by Dr. L. A. Weigel, of Rochester; 44. The Prevention of Unnecessary Deformity in Pott's Disease, by Dr. Royal Whitman, of New York; 45. A Brief History of the Use of Suspension in Pott's Disease, by Dr. Benjamin Lee, of Philadelphia; 46. Recumbency in Pott's Disease, by Dr. ApMorgan Vance, of Louisville; 47. Extension in Pott's Disease, by Dr. B. E. McKenzie, of Toronto; 48. Extension in Bed, by Dr. Charles C. Foster, of Cambridge, Mass.; 49. Traction and Fixation in Pott's Disease, by Dr. Reginald H. Sayre, of New York; 50. The Treatment of Pott's Disease, by Dr. V. P. Gibney, of New York; 51. The Comparative Value of the Present Modes of Treatment of Caries of the Spine, by Dr. E. H. Bradford, of Boston. *Friday, September 25th:* 52. A Further Contribution to Typhoid Spine, by Dr. V. P. Gibney, of New York; 53. The Treatment of Congenital Dislocations of the Hip, by Dr. E. H. Bradford, of Boston; 54. On Elongation of the Ligamentum Patellæ as a Factor in the Production of certain Knee Troubles and Difficulties in Locomotion, by Dr. Newton M. Shaffer, of New York; 55. Observations on Torticollis, with Particular Reference to the Significance of the so-called Hæmatoma of the Sterno-mastoid Muscle, by Dr. Royal Whitman, of New York; 56. Ten Cases of Excision of the Knee Joint for Disease, and their Lessons, by Dr. Joseph D. Bryant, of New York; 57. Rheumatic Spondylitis, by Dr. G. W. Ryan, of Cincinnati; 58. The Definition and the Scope of Orthopædic Surgery, by Dr. V. P. Gibney, of New York; 59. The Relations of Lateral Curvature of the Spine and Flat-foot, by Dr. Paul Redard, of Paris, France; 60. The Pathological Anatomy of Lateral Curvature of the Spine, by Dr. F. Beely, of Berlin, Germany; 61. Means of recording Rotation in Lateral Curvature, by Dr. E. H. Bradford, of Boston; 62. A Contribution to the Ætiology of Lateral Spinal Curvature, by Dr. Charles L. Scudder, of Boston; 63. Modifications in the Treatment of Lateral Curvature, by Dr. E. H. Bradford, of Boston; 64. Spastic and Infantile Paralyses, by Dr. DeForest Willard, of Philadelphia; 65. The Operative Treatment of Spastic Paralysis, by Dr. L. A. Weigel, of Rochester; 66. The Operative Treatment of Spastic Paralysis, by Dr. Charles L. Scudder, of Boston; 67. Additional Notes on Sacro-iliac Disease, by Dr. Benjamin Lee, of Philadelphia.

American Physiological Society.—Fourth annual meeting, to be held at the Arlington Hotel, Parlor No. 181, on September 22d.

Officers.—President, Dr. Henry P. Bowditch, of Boston; Secretary and Treasurer, Dr. H. Newell Martin, of Baltimore; Council, Dr. Henry P. Bowditch, of Boston, Dr. R. H. Chittenden, of New Haven, Dr. J. G. Curtis, of New York, and Dr. H. H. Donaldson, of Worcester, Mass.; Delegate to the Executive Committee of the Congress, Dr. Henry P. Bowditch, of Boston (*alternate*, Dr. H. Newell Martin, of Baltimore); Member of the Committee of Arrangements, Dr. H. Newell Martin, of Baltimore.

Programme.—Tuesday, September 22d: 1. On the Albuminoid Basis of Stomachical Mucus, by Dr. R. H. Chittenden, of New Haven; 2. On the Respiratory Functions of Various Muscles, by Dr. H. N. Martin, of Baltimore; 3. On the Respiratory Changes of the Intrathoracical Pressure, measured in the Mediastinum Posterius, by Dr. S. J. Meltzer, of New York; 4. Some Observations on the recently Discovered Proteolytic Ferment, Bromalin, by Dr. R. H. Chittenden, of New Haven; 5. The Fatigue of Nerve Fibers studied by Means of the "Action" Current, by Dr. H. P. Bowditch, of Boston; 6. Diurnal Changes in the Nerve Cells as the Result of the Normal Activity and Rest of the Animal, by Dr. C. F. Hodge, of Worcester, Mass.; 7. On the Knee-jerk studied simultaneously on both Legs, by Dr. J. W. Warren, of Boston; 8. Experimental Studies on the Knee-jerk in Terminal Dementia: (*a*) During the Cycles of Depression and Exaltation; (*b*) During Sleep, by Dr. W. Noyes; 9. On Some of the Influences which determine the Strength of Voluntary Muscular Contractions, by Dr. W. P. Lombard, of Worcester, Mass.; 10. On the Influence of "Differential Respiration" on the Circulation, by Dr. H. N. Martin, of Baltimore; 11. On the Curare-like Action of Strychnine, by Dr. E. T. Reichert, of Philadelphia.

Association of American Anatomists.—Third annual meeting, to be held in Hall No. 3, Grand Army Building, on Tuesday, September 22d.

Officers.—President, Dr. Joseph Leidy,* of Philadelphia; First Vice-President, Dr. Frank Baker, of Washington; Second Vice-President, Dr. Faneuil D. Weisse, of New York; Secretary and Treasurer, Dr. D. S. Lamb, of Washington; Executive Committee, Dr. Harrison Allen, of Philadelphia, Dr. Burt G. Wilder, of Cornell University, and Dr. Thomas Dwight, of Harvard University; Delegate to the Executive Committee of the Congress, Mr. F. A. Lucas, of Washington (*alternate*, Dr. W. K. Shute, of Washington).

Programme.—Tuesday, September 22d, at 10 A. M.: 1. (1) Some Impressions on the Teaching of Anatomy to Medical Students. (2) The Teeth of *Cheiroptera*, by Dr. Harrison Allen, of Philadelphia; 2. A paper by Dr. Frank Baker, of Washington; 3. The Arrangement of the Supracerebral Veins in Man, as bearing on Hill's Theory of Developmental Rotation of the Brain, by Dr. W. Browning, of Brooklyn; 4. Professor Cunningham, of Dublin, is expected to contribute a paper or remarks; 5. A paper by Professor E. D. Cope, of Philadelphia; 6. The Fossa Prænasalis, by Dr. Thomas Dwight, of Harvard Medical School; 7. The Structure of Basis and Cement Substance, by Dr. Charles Heitzmann, of New York; 8. Notes on the Hearts of Certain Animals, by Miss Ida Hyde, of Chicago; 9. Specimens of Anomalous Digits in Pigs and Man, by Dr. F. J. Shepherd, of Montreal; 10. A paper by Dr. R. W. Shufeldt, of Washington; 11. (1) Recent Fissural Diagrams. (2) The Morphological Importance of the Membranous or Other Thin Portions of the Parietes of the Encephalic Cavities. (3) The Fundamental Principles of Anatomical Nomenclature, by Dr. B. G.

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* Deceased.

Wilder, of Cornell University; 12. The Systematic Use of the Eye in Teaching Anatomy, by Dr. W. P. Carr, of Washington; 13. The Supracondyloid Foramen, by Dr. D. S. Lamb, of Washington; 14. Serial Fœtal Sections; Specimens and Remarks, by Dr. W. W. Gray, of Washington. Other papers are expected.

American Pædiatric Society.—Third annual meeting, to be held at the Arlington Hotel, Parlor No. 206.

Officers.—President, Dr. T. M. Rotch, of Boston; First Vice-President, Dr. V. C. Vaughan, of Ann Arbor, Mich.; Second Vice-President, Dr. Joseph O'Dwyer, of New York; Secretary, Dr. W. D. Booker, of Baltimore; Recorder, Dr. W. Perry Watson, of Jersey City; Treasurer, Dr. C. Warrington Earle, of Chicago; Council, Dr. L. Emmett Holt, of New York, Dr. W. P. Northrup, of New York, Dr. A. D. Blackader, of Montreal, Dr. T. S. Latimer, of Baltimore, Dr. I. N. Levi, of St. Louis, and Dr. C. P. Putnam, of Boston; Delegate to the Executive Committee of the Congress, Dr. A. Jacobi, of New York (*alternate*, Dr. T. M. Rotch, of Boston); Member of the Committee of Arrangements, Dr. S. S. Adams, of Washington.

Programme.—Tuesday Evening, September 22d, at 8 o'clock: Reading of minutes of the last meeting. General business. The reading of papers will be limited to twenty minutes, and the discussion of each paper to ten minutes for each speaker. The gentlemen selected to open the discussion on the subjects determined by the council will be allowed twenty minutes for their remarks. 1. Address of the President; 2. The Treatment of Scarlet Fever, by Dr. J. Lewis Smith, of New York; 3. Discussion on the Diagnosis of Pneumonia in Infancy and Early Childhood: (1) The Most Diagnostic Symptoms and Signs of Lobar Pneumonia (early stage), and the Diagnosis from such Diseases as Meningitis, Malaria, Scarlet Fever, etc., by Dr. T. S. Latimer, of Baltimore (twenty minutes); (2) The Diagnosis of Consolidation of the Lung from Effusion (Serous or Purulent), and the Differential Diagnosis between Lobar Pneumonia and Broncho-pneumonia, by Dr. F. Forcheimer, of Cincinnati (twenty minutes); (3) The Diagnosis of Broncho-pneumonia from Tuberculosis, both Acute and Chronic, and from Bronchitis, also the Temperature Range in Acute Pneumonia, both Broncho and Lobar, by Dr. L. Emmett Holt, of New York (twenty minutes); (4) Remarks by Dr. W. P. Northrup, of New York (ten minutes); (5) General Discussion. *Wednesday, September 23d, at 10 A. M.:* 4. Demonstrations; 5. The Treatment of Laryngeal Diphtheria by Calomel Sublimations, by Dr. Dillon Brown of New York; 6. Further Report on Submembranous Local Treatment in Pharyngeal Diphtheria, by Dr. A. Seibert, of New York; 7. Convulsions in the New-born, by Dr. W. D. Booker, of Baltimore; 8. Nephritis in Children, by Dr. Henry Jackson, of Boston. *Thursday, September 24th, 10 A. M.:* 9. A Study of Fifty Cases of Chorea, by Dr. Samuel S. Adams, of Washington; 10. A Case of Pulmonary Abscess—Operation and Recovery—with Remarks, by Dr. Francis Huber, of New York; 11. A Case of Slow Heart in an Infant terminating in Fatal Syncope, by Dr. A. D. Blackader, of Montreal; 12. A paper by Dr. J. O'Dwyer, of New York; 13. Stricture of the Œsophagus occurring in Children, with Report of a Case, by Dr. F. E. Waxham, of Chicago. The society will give a dinner at the Arlington Hotel at 8 P. M. *Friday, September 25th, 10 A. M.:* Report of committee of council on nominations for office and membership. 14. The Ætiology of Stomatitis Aphthosa, by Dr. F. Forcheimer, of Cincinnati; 15. Scorbutus in Children, by Dr. W. P. Northrup, of New York; 16. Intussusception, by Dr. L. Emmett Holt, of New York; 17. Perityphlitis in the Young, by Dr. J. Henry Fruitnight, of New York; 18. Demonstrations; 19. A Case of Congenital Cretinism, by Dr. C. W. Townsend, of Boston; 20. A Case of Congenital Constipation, by Dr. Francis Huber, of New York; 21. A Further Contribution to Cirrhosis of the Liver in Childhood, with Post-mortem Notes and Microscopic Studies, by Dr. W. A. Edwards, of San Diego, Cal., and Dr. W. M. Gray, microscopist, Army Medical Museum, Washington; 22. A paper by Dr. A. Jacobi, of New York; 23. A paper by Dr. A. D. Blackader, of Montreal; Executive Meeting.

The late Dr. Fordyce Barker.—Mrs. Barker has lately received the following letter from the secretary of the senatus of the University of Edinburgh:

"I beg to acknowledge, on behalf of the University, the receipt of the list of the late Dr. Fordyce Barker's works and a memorial sketch of his distinguished career, both of which will be carefully preserved in our University Library."

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for September 11th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Sept. 5.	1,515,301	736	73	..	..	..	..	..	10	13	22	5	4
Chicago, Ill.	Sept. 5.	1,099,850	419	22	..	..	..	..	..	39	5	16	3	2
Philadelphia, Pa	Aug. 29.	1,046,964	377	35	..	..		..	..	4	2	4	..	2
Brooklyn, N. Y.	Aug. 29.	803,343	330	31	..	..	..	..	..	4	3	7	1	....
Brooklyn, N. Y.	Sept. 5.	806,343	336	21	..	..	..	..	..	2	3	7	1	2
St. Louis, Mo.	Sept. 5.	451,770	164	....	..	..	..	..	..	5	1	4	..	....
Boston, Mass	Sept. 5.	448,477	188	29	..	..	..	..	..	2	..	3	..	1
San Francisco, Cal.	Aug. 29.	298,997	...	16	..	..	..	..	..	2	1	2	..	....
Cincinnati, Ohio	Sept. 4.	296,908	103	12	..	..	..	..	..	3	1	5	..	....
New Orleans, La.	Aug. 29.	242,039	103	14	..	.	..	..	..	1	..	..	..	1
Pittsburgh, Pa.	Aug. 29.	238,617	132	16	..	..	..	..	..	10	..	4	2	7
Pittsburgh, Pa.	Sept. 5.	238,617	107	....	..	..	..	..	..	7	5	4	2	2
Washington, D. C.	Aug. 29.	230,392	104	7	..	..	..	..	..	2	1	4	..	2
Detroit, Mich.	Aug. 29.	205.876	79	....	..	..	..	..	..	2	3	3	..	1
Louisville, Ky	Sept. 5.	161,129	53	5	..	..	..	..	..	2	..	..	..	....
Rochester, N. Y.	Sept. 5.	133,896	36	....	..	..	..	..	..	..	..	..	..	....
Kansas City, Mo.	Aug. 22.	132,716	27	3	..	..	..	..	..	5	..	..	..	....
Kansas City, Mo.	Aug. 29.	132,716	....	3	..	..	..	..	..	2	..	..	..	....
Providence, R. I.	Aug. 29.	132,146	54	....	..	..	..	..	..	2	..	1	..	....
Providence, R. I.	Sept. 5.	132,146	58	9	..	..	..	..	..	2	..	..	..	1
Toledo, Ohio	Sept. 4.	81,434	16	....	..	..	..	..	..	..	..	1	..	....
Richmond, Va.	Aug. 29.	81,388	45	7	..	..	..	..	..	2	..	8	..	....
Nashville, Tenn	Sept. 5.	76,168	14	....	..	..	..	..	..	1	..	..	..	1
Fall River, Mass.	Sept. 4.	74,398	39	1	..	..	..	..	..	1	..	..	1	....
Lynn, Mass.	Aug. 29.	55,727	24	....	..	..	..	..	..	..	..	1	..	....
Portland, Me.	Sept. 5.	36.425	10	....	..	..	..	..	..	..	..	..	..	....
Binghamton, N. Y.	Sept. 5.	35,005	21	1	..	..	..	..	..	..	..	..	..	....
Yonkers, N. Y.	Sept. 5.	32,033	12	2	..	..	..	..	..	..	1	1	..	....
Mobile, Ala.	Sept. 5.	31,076	15	2	..	..	..	..	..	1	..	..	.	....
Altoona, Pa.	July 4.	30,337	7	1	..	..	..	..	..	..	..	..	..	....
Altoona, Pa.	July 11.	30,337	8	1	..	..	..	..	..	1	..	..	..	....
Altoona, Pa.	July 18.	30,337	11	....	..	..	..	..	..	..	..	..	..	....
Altoona, Pa.	Jnly 25.	30,337	14	....	..	..	..	..	..	..	..	..	..	....
Altoona, Pa.	Aug. 1.	30,337	23	1	..	..	..	..	..	..	..	..	..	....
Altoona, Pa.	Aug. 8.	30,337	16	1	..	..	..	..	..	1	..	..	..	....
Altoona, Pa.	Aug. 15.	30,337	16	....	..	..	..	..	..	1	..	..	..	....
Altoona, Pa.	Aug. 22.	30,237	24	....	..	..	..	..	..	..	..	..	..	....
Galveston, Texas	Aug. 28.	29,084	17	1	..	..	..	..	..	1	..	..	..	....
San Diego, Cal.	Aug. 29.	16,159	2	....	..	..	..	..	..	..	..	..	..	....
Rock Island, Ill.	Sept. 6.	13,634	6	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.	Aug. 29.	11,750	4	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.	Sept. 5.	11,750	9	....	..	..	..	..	..	1	..	..	..	....

The Treatment of Specific Diseases was the subject of an address delivered at the opening of the Section in Therapeutics at the recent meeting of the British Medical Association by Dr. William V. Snow (*British Medical Journal*). Dr. Snow said:

In consequence of our more accurate knowledge of disease, and especially of those affections attended by febrile phenomena, since the introduction of the clinical thermometer, much progress has been made in therapeutics. We have been able to more correctly estimate the action of remedies, not only in health, but in disease, and hence treatment has become more scientific and rational. It is not, however, too much to expect that the greatest triumphs of the future may arise from the new study of animal chemistry and bacteriological research.

In specific disease we have learned that it is not only the micro-organisms present which have to be considered, but that it is probable the chemical changes they set up play a most important part in causing the phenomena of disease. It is well established that certain zymogenic organisms give rise to a chemical product inimical to their own growth, and, when of a certain strength, sufficient to stop the process. The mortality from consumption is now in England not more than one half of that existing during the first fifty years of this century, while the death-rate from this disease has increased in many countries. This grand result has been obtained by improved methods of treatment, sanitation, improvement in the workshops and dwellings of the laboring population, and especially by the subsoil drainage of towns. In the year 1882 the tubercle bacillus was discovered, and it was proved that consumption could be produced in animals by the inoculation of a pure cultivation of it. Briefly it has been demonstrated that without the bacillus no lung affection can be considered consumption. True, however, as this statement is, to my mind it is not sufficient to account for the production of the disease. The bacillus and its spore have great vitality, and must be, as a rule, present in our houses, and especially in our hospitals for consumption. Further, an appreciable percentage of animals slaughtered for food are said to be tuberculous, nor is the bacillus destroyed by imperfect cooking. Granted that it has been proved that this disease is occasionally produced by contagion, yet we do not find those employed in our consumptive hospitals more liable to infection than the ordinary population. I must hold, then, that the bulk of mankind are proof against the attacks of the bacillus, and that it can only fasten on the tissues of those weakened by bad hygienic or climatic conditions, repeated lung congestions, or hereditary taint. So far no drug has been proved capable of destroying in the human body the tubercle bacillus, or arresting its development by action on the diseased tissues in which it finds its pabulum. For years I have used carbolic and other inhalants, and found decided benefit arise in soothing cough and other symptoms, but no evidence whatever could I discover of their exercising any influence on the growth of bacilli. In cultures a moderate advance above the natural heat of the body prevents the growth of the bacillus, and it was assumed that consumption might be cured by the inhalation of heated air; but in practice it was found impossible to raise sufficiently the temperature of the air in the lungs, and this treatment has now fallen almost into oblivion. The insufflation of sulphureted hydrogen into the intestines has entirely failed, nor has any drug yet been proved to be able to influence the growth of the bacillus when injected subcutaneously, but trials are now being made in this direction.

At the International Medical Congress last year it was announced by Koch that a remedy had been discovered which conferred on the animals experimented on an immunity against inoculation by the tubercle bacillus, and which would arrest tuberculous disease, and that the remedy would be tried on human beings. In spite of all precautions, exaggerated reports of the value of the remedy were propagated, and the public impatience, and, it is even hinted, Government pressure, induced him to make a partial disclosure of the nature of the remedy and the method of its use before any sufficient experience had been obtained of its effects on the human body.

When this discovery was first announced it was compared to that of vaccination and Pasteur's treatment for hydrophobia, but several very marked distinguishing points induced most reflective minds not to anticipate equally good results.

Jenner was dealing with small-pox, a disease, as a rule, occurring only once during life, and rendered the system incapable of an attack by the substitution of a form of the same disease weakened by transmission through the cow. In hydrophobia the remedy is introduced into the system after the contagion, but before the symptoms of the disease have manifested themselves. In Koch's method the remedy is not applied until after the disease is established, and can only arrest its further progress, but can not repair the damage already effected.

The public excitement was increased by a not unnatural mistake of the daily press in calling the remedy a "cure" for consumption, instead of a "new remedy" for the treatment of that affection. The medical profession were also greatly impressed by the immediate beneficial effects produced on some surgical affections, and notably on lupus; sufficient time had not then elapsed to prove that the results were not always of a permanent character. Hence, even before the manufacture was perfected (and I have reason to believe that the first tuberculin produced more serious symptoms than supplies subsequently sent out), a treatment requiring the greatest care was initiated in the middle of almost the most severe winter of the century, and mainly in the foggy, crowded, and, in many instances, insanitary large cities of Europe.

One result only could follow: the unreasoning belief of the multitude in a new remedy was disappointed, cases of mischief from its use were reported, statements against it, often I believe beyond what science would justify, were made, and a danger existed, and still exists, that a discovery, which at any rate merits a fair trial, may be discredited and even consigned to oblivion from the rash way in which it was introduced. In consumptive people, even when not much tissue is affected, a small injection of tuberculin—as little as 0·002 cubic centimetre—may cause intense febrile reaction, and, from the frequency with which stained expectoration has been noted, we may infer that active congestion is set up wherever tuberculous tissue exists, whether in the lungs, kidney, or brain membranes; hence the danger of its use where complications either exist or, as in the very young, may be feared. Would any physician, if he had the choice, wish to treat a case of pulmonary phthisis in the air of a large city during the time of smoke fogs, much less put him on treatment which, for the time at least, must produce considerable febrile reaction? It appears to me that, instead of in Berlin, the treatment should have been initiated in good country air, and, when completed, the patients should have been removed to an approved climate.

Before the injection of tuberculin can be adopted as a recognized method of treatment for consumption, the following question must be answered in the affirmative: Can this treatment be carried on with reasonable safety? In very weakly patients and those with extensive and advanced disease, such a treatment must be attended with risk, and it is not surprising to hear that fatal results have directly followed the injection of tuberculin. The ten cases treated at Ventnor, the similar number treated in the Sanatorium, coupled with the experience of Dr. Coghill at Ventnor in private practice and my own, inclines me to believe that tuberculin may be safely used in cases judiciously selected, under favorable circumstances.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

CHRONIC NON-SUPPURATIVE INFLAMMATION OF THE MIDDLE EAR.

AN ANALYSIS OF CASES OF THIS DISEASE TREATED AT THE NEW YORK EYE AND EAR INFIRMARY

By E. B. DENCH, M. D.,
AURAL SURGEON, NEW YORK EYE AND EAR INFIRMARY.

UNDER this title the writer desires to call attention to a few facts suggested by a somewhat careful study of a number of cases which have come under his observation during the last few months. The subject is not a new one, and it is not intended in this consideration to advocate any new plan of treatment, nor is it the belief of the author that he is really presenting any facts which may not have been already suggested by other writers. The frequency of the disease under discussion and the almost universally grave prognosis given in these cases as to the ultimate result of treatment, both with reference to subjective noises and to hearing, no matter what form of treatment is employed, warrants, I think, the presentation of any facts which may guide the physician in arriving at a prognosis in any given case. During the past three months I find the diagnosis of chronic catarrhal otitis media appearing one hundred and twenty-six times in my case-books at the infirmary. As it is manifestly impossible to keep a complete record of each of these patients in a busy dispensary practice, and, furthermore, as many of them belong to a class of cases which every one familiar with aural disease knows will improve under treatment, I have made it a practice to limit a careful testing to those in whom there was a reasonable doubt as to what the result of treatment would be. Careful records of these cases have been kept, the hearing having been carefully tested by the voice and by a series of five tuning-forks, running from C, 128 vibrations a second, to C^{IV}, 2,048 vibrations a second, each fork differing by one octave from the one above and below it. The hearing has been tested at various times during treatment and the result noted. Of course, some of the cases have disappeared, yet in forty-one the histories are complete enough to afford us data of some value. It will be seen, therefore, that, although the number of cases at first sight seems small, when we consider that we have eliminated those cases in which there was no question as to the ultimate favorable result, we have accumulated evidence of no small value and of no insignificant amount, since it represents a class of cases usually passed over with the judgment that they are practically beyond our reach.

In order to make my meaning more clear, perhaps it would be better to more exactly define my title.

By a chronic non-suppurative inflammation of the middle ear is meant that form of inflammation of the lining membrane of the tympanum which progresses so slowly that patients frequently are not aware of its existence until it has seriously interfered with the function of the parts in the tympanic cavity. This of course excludes all cases which follow an attack of acute inflammation, a condition which all aurists agree is much more amenable to treatment, and in which the permanent impairment of hearing, if the treatment in the early stage is properly carried out, is usually very slight or nil.

One of the chief reasons why the disease under consideration presents so many obstacles to treatment lies in the fact that the symptoms are for several months, or in many cases for years, so slight as to scarcely attract the attention of the patient. Most frequently both ears are affected, but seldom to the same degree; and in these cases the patient frequently does not present himself for treatment until the disease has affected both. It is surprising how many patients present themselves with the history that they have been conscious of impaired hearing, or tinnitus, on one side for a long time, but have applied for treatment only when the ear which they considered sound became affected. Again, impairment of hearing, if unilateral and unaccompanied by tinnitus, is frequently not noticed, and it is only when the hearing in the other ear is affected that such cases apply for treatment.

Upon what data, now, can an opinion be given as to the probable result of treatment? Any one familiar with the otoscopic appearance of these cases knows how little can be learned from ocular inspection of the tympanic membrane. Usually this shows changes, but in the majority of instances these alone are insufficient to form a basis for an intelligent prognosis. The condition of the Eustachian tube, as evidenced by auscultation during catheterism, is a very valuable aid in many cases, but is of much less value in the cases we are now considering than in those of an acute or subacute character. It has seldom fallen to my lot to find any accumulation of fluid in the tympanum in these cases, or any supersecretion in the Eustachian tube. In some instances there will be considerable narrowing of the tube; but the auscultation sounds are, almost without exception, dry and not moist. Not infrequently the tube will offer no obstruction to the current of air, forcing upon us the conclusion that the impairment is not due to Eustachian obstruction. Again, the tube may be more patent than normal.

Throwing out, then, these two procedures, which, although of the utmost importance in aiding us in a correct appreciation of the case, seem rather to enable us to interpret correctly the significance of our subsequent observations rather than to form a definite opinion upon their revelations alone, we turn to the various tests of hearing in the hope of finding some aid to a correct prognosis.

Although, up to the present time, no perfect means of testing hearing has been discovered, the tests which I believe to be the most accurate are the human voice and the appreciation of musical notes by means of tuning-forks.

It is a well-known fact that the various sounds which go to make up articulate speech have each a definite value, a fact pointed out by Wolff * and elaborated by Blake † and others. Hence, in choosing test words, care should be taken

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* *Arch. of Ophthalmology and Otology*, vol. iv, pp. 67 and 267.

† *Trans. of the Am. Otolog. Soc.*, 1881, p. 505.

to choose those which have as nearly as possible the same value. The pitch of the voice varies in each individual, and to a less degree in the same individual at different times, no matter how much care is exercised; the whisper, however, is approximately of constant pitch for a given combination of letters, and hence offers a more accurate test than the ordinary conversational tone. The size and shape of the room influence the ability to perceive sound to a certain extent, but to a much less degree in those whose hearing is seriously impaired than in those in whom the impairment is slight, on account of this fact: that in these latter the source of the sound being further removed, the surroundings play a very important part in the re-enforcement and transmission of the sound waves—conditions which do not apply when the sounding body is near the individual to be tested. The cases which really involve a doubt as to the prognosis being usually those in which the hearing to the whispered voice is much impaired, the test, with the exercise of proper care, is a valuable one.

With reference to tuning-forks, it is only necessary to recall the well-known fact that under normal conditions the vibrations of the fork are heard better when the instrument is held in front of the ear than when it is placed upon the mastoid process. This in general is true of all forks. We also remember that the normal ear is formed to appreciate not only the quantity but also the rate of vibration of the sounding body—that is, pitch; failure in either direction constitutes a serious impairment in hearing. Speaking broadly, it may be stated that failure to appreciate any single note by both air and bone conduction indicates a lesion of the receptive apparatus of the organ of hearing, while failure to appreciate a given volume of sound points to a pathological condition in the conducting mechanism. Of course the foregoing is a general statement and must not be taken as absolute, nor should we forget that sometimes bone conduction may be almost or entirely wanting, as in cases reported by Knapp,[*] and yet the lesion be one essentially of the middle ear. I am inclined, however, to agree with Blake [†] that in these cases the fault is due to the fact that the labyrinthine fluid can not vibrate on account of the pressure in the middle ear. To Rinne [‡] we are indebted for the observation that in diseases of the conducting apparatus the normal relative duration of air conduction to bone conduction is shortened, and that when the reverse is true the receptive apparatus is at fault for the impaired hearing.

In applying the test it has been customary to use a fork of about the pitch of the middle C in the musical scale. It at once becomes evident that certain limitations must be set upon this test, for it is only in cases where the impairment of hearing has reached a certain degree that this test, as ordinarily applied, will be of value—that is, that a fork will be heard by bone conduction after it has ceased to be heard when held in front of the ear. In other words, all cases of moderate impairment of hearing would by this test be relegated to the category of affections of the receptive apparatus. Lucae [*] has attempted to determine how great a degree of impairment is necessary in order to render Rinne's test of value as a diagnostic means, and has come to the conclusion that in those cases in which the whisper is not understood at more than one metre, a positive result in Rinne's experiment usually points to a diseased condition of the receptive apparatus, while a negative result indicates that the fault is in the transmitting mechanism.

All of this is valuable, but it has always seemed to me that the energy which has been expended in trying to distinguish between the exact location of the morbid process might have been with greater advantage turned in the direction of obtaining information as to the amount of improvement which might be expected from treatment in cases presenting certain features in applying the tests. This is to an extent obtained, of course, when the seat of the lesion is located in either the trunk of the auditory nerve or in its specialized endings in the internal ear, and yet, as labyrinthine involvement may be secondary to changes in the middle ear in the class of cases which we are considering, may we not pronounce quite a number of cases as beyond our power if we stop when we find that the labyrinth is involved, in which the labyrinthine symptoms depend simply upon undue tension in the middle ear, a condition which may be amenable to treatment?

A plan which has been followed in the cases reported was to test systematically each case in which the whispering distance after inflation did not remain at a considerable distance above forty inches with the series of five tuning-forks, already alluded to. The relation of air to bone conduction for each fork was recorded and a record of the cases kept. Only such cases are reported as have a fairly complete history, a work of no small labor in a large dispensary practice. These tests were also made in doubtful cases in which the whispering distance was over forty inches; in fact, in all cases in which there was a reasonable doubt as to the probability of improvement under any form of treatment. This explains the small number of cases reported.

Out of forty-one cases which appear in my case-book as chronic non-suppurative inflammation of the middle ear, or the commonly designated chronic catarrhal cases, I exclude six as not properly belonging to this class, in that one was probably suffering from a lesion of the receptive apparatus, one presented symptoms which would class the affection as presbykusis so ably described by Roosa,[†] and one was due to traumatism.

Of these thirty-eight cases, then, which belong to the class we are discussing, twenty-eight were improved, six were practically cured, three were unimproved, while in one case the treatment seemed to render the patient worse. Of the cases designated as cured, it should be stated that the majority of these patients were young people in whom, although the disease had existed for periods varying from one to several years, yet the youth of the patients rendered the disease more amenable to treatment than in patients in adult life. Of two adults included in this category, the impairment of hearing was not marked enough to cause the patient to apply for treatment, but tinnitus had been distressing. In both cases the symptom was completely relieved.

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[*] *Trans. of the Am. Otolog. Society*, 1880, p. 407.

[†] *Ibid.*

[‡] *Prag. Vierteljahresschr.*, 1855, Bd. i, p. 71; Bd. ii, pp. 45 and 155.

[*] Cited by Bezold, *Allg. Wien. med. Ztg.*, 1887, p. 183.

[†] *Trans. of the Am. Otolog. Soc.*, 1885.

Turning now to the reaction which these cases presented to the tests, we find that in only one was the whispering distance reduced to forty inches; in all the others it was considerably beyond this limit; while in the adults, suffering particularly from tinnitus, the whispering distance in one case was twenty feet and in the other about seven feet. In each of these cases the bone conduction for the first three forks was better than air conduction, showing that serious changes had taken place in the conducting apparatus, although not to such an extent as to seriously inconvenience the patient in understanding conversation. In only one case, in which the whispering distance was less than forty inches, was air conduction persistently better than bone conduction. This was the case of a boy of fourteen, who had been suffering from greatly impaired hearing on one side for over a year, the trouble following one of the exanthemata; the whispered voice was heard at twelve inches, and each tuning-fork was heard better by air than by bone conduction; in fact, the case presented the reaction of one suffering from a severe lesion of the receptive apparatus. The tympanic membrane presented to inspection nothing more than slight catarrhal changes. The Eustachian tube was moderately narrowed, and inflation doubled the hearing distance. In the face of this I reserved my opinion for a few weeks, to watch the effect of treatment, which resulted in almost perfect restoration of hearing. I can only explain the apparent discrepancy between the result of treatment and the examination by the fact that the changes in the middle ear had produced a condition of increased tension within the labyrinth, and that this accounted for the irregular bone conduction. This pressure was relieved by the treatment directed to the middle ear, and improvement followed. In one case, in which the symptom complained of was a distressing tinnitus, without much impairment of hearing, the air conduction for musical notes was better than bone conduction, as we should expect, with only slight impairment of hearing.

Turning now to the improved cases, twenty-eight in number, we find a record of bone conduction and air conduction in twenty-four. In these the bone conduction was greater than air conduction in eighteen, and less than air conduction in six; in all of these latter, in which the whispering distance was given, it was over forty inches, except in a single case, in which air conduction was better throughout; this was the case of a patient seventy-four years of age, at which time of life bone conduction is apt to be relatively diminished. In other words, the pathological condition within the tympanic cavity was complicated with presbykusis, already alluded to.

In four of the improved cases, in which the whispering distance was over forty inches, the bone conduction was greater than air conduction for the first two or three forks, while for the higher notes air conduction was better. In two of these cases the whispering distance was normal, while in the other two it measured from four to five feet.

In the three cases in which no improvement was noted two were very hard of hearing, the whispering distance being less than two feet, and the bone conduction for the first four forks exceeding aerial conduction. In the third case, one of distressing tinnitus, I am inclined to think that the symptom arose from impairment of the general health, and that the case should not be considered as coming under this category, the hearing being unimpaired.

In what cases, then, can we hope to improve the patient's condition by treatment? As we have seen by the above-recorded cases, one of the first evidences that we have of a disturbance in the conducting mechanism is an alteration in the relation of aerial to bone conduction, and the point which is to be particularly brought out is, that this begins with the low notes, and, as the disease progresses, successively affects the transmission of the higher notes. In some of the cases we find bone conduction greater than or equal to aerial conduction for the first fork, 128 vibrations per second, or the first and second, and yet the whispered voice may be heard at a limit which may be called normal. The patient may complain of constant or intermitting tinnitus, and may believe the hearing perfectly normal, or say that it is only occasionally impaired. Yet the tuning-fork shows us clearly that considerable disturbance has already taken place. I am inclined to believe that this relation of air to bone conduction for the various notes gives us more information with reference to the actual amount of damage than the degree of impairment of the hearing. The two together, however, enable us to form an opinion of no small value in determining the prognosis. When the bone conduction for all five octaves is better than aerial, I think that the chances of improvement from anything except operative treatment is very small. Such a condition indicates that the conducting apparatus is so much impaired that the notes which are the most easily transmitted—that is, the high notes—fail to influence it; hence it indicates a degree of rigidity which we can scarcely hope to overcome. For anything less than this, however, I think we can safely count on ameliorating the condition. Frequently in these cases the first four forks were heard better through the bone than through the air; there is apt, however, in favorable cases, to be a rapid decrease in bone conduction relative to air conduction as we ascend the scale.

Cases in which the bone conduction is less than the aerial conduction, if belonging to the class of cases which we are now considering, will almost invariably exhibit a whispering distance of over four feet, and, unless the whispering distance is reduced to this limit, I do not think that we can assume labyrinthine involvement unless the power to perceive certain notes is entirely wanting, or almost so.

Another factor which influences the prognosis is the age of the patient. As will be seen from the above-mentioned cases, those reported as cured almost always occurred in youths or young adults, the reason being that the tissues at this period of life are more easily influenced than at a later period. In this connection it is only necessary to state further that, in advanced life, quite a large number of individuals suffer from a moderate deterioration in their hearing power, probably due, as Roosa * suggests, to changes in

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* *Trans. of the Am. Otolog. Soc.*, 1885.

the receptive apparatus, and to which he has given the name "presbykusis." It only need be remembered that this condition is not apt to progress to any great degree, and also that it may mislead us, in the examination with the tuning-fork, in that bone conduction is reduced, as noted in one instance above. A careful inquiry will usually enable us to decide whether the labyrinthine changes are due to the age of the patient or are secondary to the condition in the middle ear. Sexton * believes that the pathological condition in the middle ear can account for all symptoms which we find in this form of impaired hearing.

The duration of the disease is, of course, a factor, but, as the disease is a chronic one, the mere fact that it exists is evidence of its presence for a prolonged period, and I am inclined to think that a patient's statement, although it marks the time when the disturbance was first noticed, affords us little information as to the actual duration of the pathological process.

Coming now to the treatment employed in these cases, I would again repeat that no special line of treatment was followed other than that ordinarily laid down. Inflation of the middle ear, usually by means of the catheter, was performed once or twice weekly, and at each inflation, after the air douche, vapor of iodine and camphor was introduced through the catheter in cases which did not seem to improve rapidly by means of the air douche alone. A point which seems to me to be of some importance is the use of prolonged and rather powerful inflation when there is evidence of firm adhesions, and when the membrane is not atrophied to an extent to endanger rupture from this procedure. This has been my habit, even when the Eustachian tube has not given evidence of any very marked narrowing, because I believe that the renewal of air in the middle ear in these cases forms a very small part of the efficacy of the inflation. The mechanical effect of the air current in stretching adhesions in the cavity of the tympanum, I am convinced, does more good than the renewal of air, which I am inclined to think is fairly good in most instances. Many prefer to employ massage by means of some modification of the Siegle otoscope, or the masseur of Delstanche, which I think offers no advantages over the former, while Lucae † uses a spring sound, the end of which he places upon the short process of the malleus, the instrument being manipulated through the external auditory meatus. This procedure I have tried in private practice, but without much success.

Where the Eustachian tube is decidedly narrowed, and where the narrowing does not disappear in a reasonable length of time with the use of the air douche, bougies are of decided benefit. In one of the cases above reported the improvement obtained by this procedure was very marked.

In another case in which tinnitus was distressing, and was only temporarily relieved by inflation, tenotomy of the tensor tympani was performed, the knife being also swept high up in the cavity to divide any existing bands in the fornix, as well as through the atrium, where bands could be seen to exist; in this case the operation was successful in relieving the tinnitus to a considerable extent.

With reference to hygienic treatment and treatment of the throat and nasal passages, thorough regulation of the former was possible in but a small proportion of cases, owing to the poor condition of many of the patients. Of the cases reported, those requiring a course of throat treatment were referred to the throat department of the hospital, but a very small number of cases presented symptoms which demanded such a course of treatment. It is in the class of cases which we are considering that the treatment of the throat and nasal passages does the least good; that class of cases directly dependent upon diseases of the nose and naso-pharynx having been purposely excluded from this paper, as usually the ultimate result of treatment is satisfactory, and a favorable prognosis can almost certainly be given.

Of the cases which we are considering there is one special indication for throat and nasal treatment; and that is, when, in addition to the chronic disease, we have a history of increased impairment of hearing due to a cold or an exacerbation of a concomitant catarrhal trouble. In such cases the patient can always be promised, I think, that the hearing can be kept constantly at its highest point by the appropriate treatment of the nose and naso-pharynx. In fact, the more trouble there is in these regions the better, relatively, the prognosis. Unfortunately, very few of the instances here considered come under this category.

A form of treatment which, of course, can have but a limited field in dispensary work, but which in private practice I have found to be of service in some instances, is the use of systematic massage of the ossicles, for periods of ten to fifteen minutes, by the use of some form of ear-trumpet or conversation tube. This method is deserving of a much wider test than it has had at present. The best results which I have seen obtained thus far have been by the use of the instrument of Dr. Maloney,* of Washington, called the otophone. The inventor states that the vibrations of the membrane in the otophone simulate closely the vibrations of the tympanic membrane, and that hence the conditions for the exercise of the stiffened articulations are better met by this instrument than by any other. I can only say that, in a case which has been under this form of treatment in conjunction with treatment directed to the middle ear and upper air tract, the result has been most satisfactory. In cases where it is deemed advisable to attempt this form of treatment, an apparatus which I have been in the habit of advising among the poorer classes consists of a rubber tube, about two feet in length, into one end of which is slipped the tube of an ordinary kitchen funnel; the free end of the rubber tube is secured in the auditory canal of the patient while, for ten or fifteen minutes twice daily, the patient is to be read to in a tone of voice loud enough to be easily understood, the reader pronouncing into the funnel as into the mouth-piece of a telephone. Words not understood clearly are to be repeated a number of times, so as to make the patient familiar with them. I am inclined to think that this form of treatment is valuable, not only in effecting a massage of the ossicles, but, to a certain extent, in causing these patients to learn a new language—that is, the impaired transmitting mechanism will probably never transmit articulate sounds perfectly in such a manner as to convey to the mind the same impression as is conveyed with a perfectly healthy transmitting mechanism; in other words, the patient will always hear some sounds imperfectly, and must consequently learn to interpret these imperfect sounds into ordinary language, or learn the equivalent of the imperfect sound. This is secured in large measure, I believe, by the persistent and systematic use of some aid to the hearing for short intervals each day. It is scarcely necessary to add that during these exercises the eyes should be blindfolded to prevent lip reading, and the better ear should be closed.

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* *Trans. of the Am. Otolog. Soc.*, 1885.

† *Arch. für Ohrenheilk.*, Bd. xxi, p. 84.

* *Arch. of Otol.*, 1887, p. 177.

As regards internal medication, the patient's general health should be kept in the best possible condition. The administration of any drug with the idea that it will improve the hearing is, of course, not to be considered, if we except possibly pilocarpine, as suggested by Kosegarten.* I have not used the drug hypodermically, but in a few cases have given a small dose, three times daily, by the mouth, with directions to avoid draughts for a few hours afterward. The use of the drug has been in connection with local treatment, so it is impossible to state how much of the improvement was due to the internal medication. The improvement, however, seemed to be more marked after the exhibition of the pilocarpine.

With reference to operative interference in this form of disease, I am inclined to think that the time is not far distant when we shall be able to promise better results from surgical procedures than we can at present. In a somewhat limited experience in the operative treatment of these cases and of similar conditions in suppurative cases, I am in the habit of suggesting the opening of the tympanic cavity when, after a somewhat prolonged course of treatment, the impairment of hearing is unimproved or tinnitus continues to be a distressing symptom. My experience has been that opening the tympanic cavity and the division of the incudo-stapedial articulation, with or without excision of the malleus and incus and tympanic membrane, will diminish the tinnitus in a certain proportion of cases, but the effect upon the hearing is much less certain. I always believe, however, in putting the fact clearly before the patient, and believe that, with proper precautions, operative interference within the tympanic cavity is devoid of all danger, and that we can certainly promise the patient that there is no danger of damage being done by the operation, even if relief does not result.

Another question which we have to consider is the duration of treatment. Herein, it seems to me, lies a possible fault. While I believe that it is of the utmost importance to inform a patient of his condition and of the prospects of treatment, I am also convinced that, in many instances at any rate, we should do better by our patients if we did not give an almost uniformly unfavorable prognosis in these cases. As this report shows, we can at least hope to ameliorate the symptoms to a considerable extent, and I feel convinced that no case should be pronounced beyond help until we have faithfully tried the various means at our command and continued the treatment for some time—say, at least four or six weeks—and then persisted for months if there is the least sign of improvement. We must remember that the disease with which we are dealing is a chronic one, and its beginning in most cases probably antedates the time given by the patient from one to several years. We should not expect, then, to effect any very marked change in a few weeks, and months even may pass before we can really feel that ground has been gained. When we compare this course with the behavior under treatment of many of our chronic diseases in other parts of the body, it does not seem that the course differs from pathological conditions in other parts of the body. We can not expect any one form of treatment to cure or improve every case of impaired hearing due to a chronic inflammation within the tympanum, any more than we can expect every form of arthritis to do well under any one line of procedure; it is only by a judicious selection of the means at our disposal that we can hope to attain the best results. Let us study our cases not from the point of view that we are dealing with impaired hearing simply, but rather, as in other regions of the body, let us strive to find out the exact cause of the symptom and then direct our energy to its removal. Only in this way can we hope to obtain results in otology which shall compare favorably with the most recent achievements in the other departments of medicine and surgery.

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RETINITIS ALBUMINURICA AND PREGNANCY.

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At the Manhattan Eye and Ear Hospital during the twelve months ending October 1, 1890, there is recorded one case of retinitis albuminurica in a total of over seven thousand eye patients. In my own clinic at the New York Post-graduate Medical School three cases have appeared. During my service as assistant surgeon at the New York Eye and Ear Infirmary several came under my notice. None of these was I able to follow out to their conclusion, as the patients disappeared while under treatment. In my private practice during the past five years I have run across four cases of amaurosis or amblyopia nephritica occurring in pregnant women, one of whom recovered through Nature's efforts, the other three perishing, in two instances because of non-interference, the last because interference was too long deferred.

I subjoin the histories as follows:

Case I. *August 17, 1886.*—Mrs. H., a young woman in her first pregnancy. In the fifth month began to have œdema of the feet—not marked; indeed, not more than most women have during gestation. This was followed by shortness of breath and some failure of sight. Examination of eyes revealed retinitis albuminurica; examination of heart revealed mitral insufficiency; examination of urine, albumin. I advised immediate induction of labor. A second consultant advised waiting. They waited. The condition remained the same until the time of normal labor arrived, with the onset of which the patient was seized with convulsions which succeeded each other, the patient being unconscious during the intervals. Delivery was accomplished with rapidity and a healthy living child was born. Placenta delivered without difficulty. The rapid delivery occasioned some, but very little, laceration of the soft parts. Hæmorrhage was inconsiderable. No anæsthetic was used, as the patient was unconscious. The mother never rallied, but died in six hours. The child died in a few months, of inanition.

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* *Arch. of Otol.*, vol. xvii, p. 95.

Case II.—Mrs. C., aged about thirty-two years. First pregnancy. At seven months began to have general œdema. Vision failed until she was almost blind. Family physician consulted, who instituted treatment purely medicinal. At time of labor convulsions occurred. Delivery accomplished and patient revived. Two days after, vision had returned to $\frac{20}{70}$, with every indication of speedy recovery. On the seventh day suppression of urine occurred. Eclampsia followed and death supervened.

Case III.—Mrs. H., aged twenty-five years; family physician gives following history: Has had two children. The first born February 29, 1888; still-birth. Second born alive February 15, 1889; on both occasions albuminuria, anasarca, and eclampsia. Seen in consultation with reference to inducing labor May 8, 1890. Is pregnant two months and has had partial suppression of urine, paroxysms of dyspnœa, headache, vomiting, some œdema of feet, albumin and casts in urine. At time of my examination patient was feeling very well; occasional frontal headache, no œdema of feet, passing fair amount of urine, occasionally has a trace of albumin, no casts. Fundus of each eye apparently normal. Has hypermetropic astigmatism, V. = $\frac{20}{40}$, not improved. Advised that she be carefully watched for a few days, as there are at present no symptoms denoting renal trouble. No further trouble developed, but in a few days patient miscarried. Shortly after, sight tested, with V. = $\frac{20}{30}$+; $\frac{20}{15}$ with + 0·50 D. c. ax. 90° both eyes.

Case IV. *August 6, 1891.*—Mrs. F., aged thirty-two years. Native of France; second pregnancy, now within a week of her expected confinement. Has one child, born twenty-two months ago; had a tedious labor but no serious trouble. Made a good recovery. Never had any miscarriages. Has been very well until nine days ago, when she noticed her sight was failing, and during this time has been unable to sleep because of pain in her hips; unable to lie in bed comfortably. Appetite good. No headache, no vomiting, no œdema. In fact, no trouble of any kind noticeable, excepting these pains and failing sight, which grows worse daily. Brought to my office by family physician, who has just been consulted.

O. D. V. = $\frac{20}{100}$, O. S. V. = $\frac{10}{200}$, unimproved. Field not impaired. Color perception good. Javal shows no astigmatism.

Ophthalmoscopic examination of fundus reveals nerves hazy and indistinct. Retina plastered over with white plaques of very large size with profuse and extensive hæmorrhages. Diagnosis of retinitis albuminurica made, and, pending urinary analysis, advised free catharsis and infusion of digitalis with counter-irritation over kidneys. On the evening of the same day the doctor reports quantity of urine not small, specific gravity 1·028 and loaded with albumin. I advised immediate induction of labor. Advice not accepted, but expectant plan adopted in hope of labor coming on.

9th.—Doctor reports no improvement. I again advised induction of premature delivery. Decided it shall be done.

10th.—Labor induced and patient delivered of living female child of small size. Before delivery the following notes were made: Patient pallid and waxy-looking; general œdema, but not marked; pitting on pressure over shins; emits a urinous odor. O. D. V. = $\frac{15}{200}$, O. S. V. = $\frac{1}{200}$. Specimen of urine passed at this time and examined the next day showed the following: Reaction alkaline, odor of decomposition, abundance of albumin present, specific gravity 1·008, color reddish and muddy. Microscopic examination showed red blood-corpuscles in large quantity, granular and hyaline casts with triple phosphates, oxalate-of-calcium and urate-of-ammonium crystals.

11th, 3 A. M.—Patient suddenly seized with convulsions and died before physician could arrive.

I have always felt that Case I terminated fatally because of the neglect of the family physician to do what was plainly his duty early in the case. But he acted on the advice of an experienced consultant competent in most things, but who considered the life of the child of too much importance. As it was, the child was born alive and lived about two months, while the mother's life was sacrificed.

The termination of Case II was the result of neglect or ignorance on the part of the family physician which seems almost criminal. The mother died and the child lived, and when I last heard of it it was still living, but delicate and puny.

In Case III the result was extremely fortunate, and, while there may be a doubt as to the existence of kidney trouble in the patient's last pregnancy, the probabilities are in favor of its presence. At any rate, Nature kindly relieved her of a repetition of her previous experience, and I think much to the patient's advantage.

The termination of Case IV was, of course, unfortunate. The trouble in this case may have been of very sudden onset, yet I think it more than likely that an examination of the urine earlier might have revealed the existence of trouble and have averted the final catastrophe. As it is, the question has probably arisen in the minds of the family and friends whether the operation was not the cause of death. But, in the face of this, I am convinced that it was clearly indicated and justifiable, and, despite adverse criticism, would advise a like course in a similar case.

Supposing, however, that before the eye symptoms, which were the first to attract attention, occurred, the urine had been examined and albumin, and only albumin, found, the urine being otherwise normal, what importance should we attach to such a discovery? In other words, how shall we recognize kidney disease when occurring in the pregnant woman? The presence of albumin in the urine may occur within physiological limits in both the male and female from a variety of causes, and has come to be considered not necessarily a cause for alarm, and writers on this subject have decided that it has so little significance as a sign of disease that people applying for life insurance are not considered as debarred because of its existence alone.

Occurring as it does in the female in both the pregnant and non-pregnant state, we are not therefore justified in looking on its presence with alarm, and it is only when it is accompanied with other symptoms of graver import that we concern ourselves with it at all.

But, nevertheless, we look for it, and, on finding it present, we search for further evidence of its existence being a symptom of disease.

The reasons are obvious why we should expect its presence when occurring in connection with pregnancy.

In looking over the voluminous literature on this subject, we are struck immediately with the wide differences of opinion which prevail as to its frequency and the value to place on its occurrence. In Leishman's *System of Midwifery* the author states that albumin exists in the urine of twenty per cent. of all pregnant women, and disappears within a short time after delivery, and may easily be due to pressure of the enlarging uterus on the renal veins. The same cause would account for the œdema of the lower extremities in a like case; but when it occurs in connection with general œdema it is of graver import.

Varnier states that, in eight hundred pregnant women in good health under the care of Pinard, examinations of the urine were made systematically every fifteen days, and in three only was albuminuria found, and these were primiparæ, the reason assigned being that, the abdominal walls being tense, the pressure exerted on the uterus was greater and the renal circulation was thereby impeded. W. W. Jaggard, in *Pepper's System of Medicine*, quoting Schröder, says that albumin is found in from three to five per cent. of all pregnant women, and says that the determination of limit as a physiological occurrenee is a matter of great difficulty. In the large proportion of cases the boundary line is passed, the physiological function undergoes pathological exaggeration, and disease is produced.

The same author, quoting Leyden, says that a condition of the kidney exists in pregnant women which he calls the kidney of pregnancy. Albumin exists in the urine, with granular and hyaline casts and œdema of the legs. This is caused by fatty degeneration of the epithelium covering the glomeruli and lining the uriniferous tubules, and is not of an inflammatory nature. It is rare before the sixth month, more frequent in first than in subsequent pregnancies, but liable to return. In many cases it disappears with the other symptoms during or soon after convalescence, though the amount of albumin present is usually large. But, while this may continue without causing serious disturbance and may cease with delivery, it may also persist and produce disease.

Ellis, in the *Boston Medical and Surgical Journal*, 1880, says the frequency of albuminuria makes him careful not to say that disease exists unless its occurrence is continuous and associated with casts. A few casts, however, do not prove the existence of disease, and the diagnosis must be made not by one symptom alone, but by the continuous existence of a group of symptoms. Again, we find one author saying that albuminuria of pregnancy is only recognized late in its course, but that it does not follow that this marks its first appearance. We may be certain that it existed before and was not recognized, because the condition otherwise did not call attention to its existence, and even then the first intimation of its existence may be convulsions occurring during labor.

Having established the fact that albumin may exist in the urine in health and may also exist as a symptom of disease, the next point to be considered is, What significance has the eye symptom as to the existence of nephritis in the pregnant woman? Two forms of eye trouble may occur as a result of kidney disease, neither of which, though happening during pregnancy, is peculiar to that condition—namely, amaurosis without perceptible change in the fundus, and retinitis albuminurica, so called.

Amaurosis nephritica is characterized by a loss of sight, generally sudden, occurring as a result of uræmic poisoning acting on the nerves or nervous centers connected with vision, and is generally a precursor of eclampsia. It is not generally of long duration, and, if the patient survives the original disease, sight is restored.

Retinitis albuminurica, on the other hand, is an affection of inflammatory origin, affecting either the optic nerve, the retina, or both, and characterized by fatty degeneration of the nerve elements of the retina, with hæmorrhages, and results in impaired vision, if not in atrophy and complete blindness.

Both of these conditions may occur as the first noticeable symptoms of nephritic trouble; but an examination of the urine in the majority of cases will reveal other evidence of trouble present, and, in any event, may be considered almost an absolute proof of the existence of serious renal disease.

Albumin, then, occurring as it does in the urine of a large number of pregnant women, can not of itself be considered of diagnostic importance. The same may be said of granular and hyaline casts and œdema of the feet; but when there exist as well general œdema, blood in the urine, and amaurosis or albuminuric retinitis, he must be blind indeed who did not feel concern for the welfare of his patient. I doubt very much if there is one man in the whole vast army of physicians who would be willing to allow a woman to go without more than ordinary attention whose urine showed albumin with granular and hyaline casts, and whose feet were ever so little swelled.

Having decided that our patient who is pregnant has nephritic trouble, what significance shall we attach to their connection? W. W. Jaggard, before quoted, says: Acute Bright's disease is one of the most serious affections that can occur in connection with the pregnancy. It strongly predisposes to abortion or premature labor.

Braun observes that an examination of the blood from the umbilical cord shows the presence of large quantities of urea, as a result of which the chance of the fœtus surviving is very slight; and even if it does, it is liable to succumb after expulsion to the diseased condition of its blood. As regards the mother, the existence of nephritis predisposes to abortion or premature labor, either of which is an effort of Nature to effect a cure; if neither occurs, eclampsia is present at the time of normal labor.

Eclampsia is reckoned as one of the most disastrous affections met with in the practice of obstetrics, ranking second only to rupture of the uterus.

Frerichs says that 30 per cent. of the mothers succumb to this condition, while the mortality as regards the fœtus is 50 per cent. Dickinson says that 25 per cent. of the mothers with albuminuria have convulsions, while Cohn places the infant mortality as high as 87 per cent.

Dickinson also says that a complete cure of albuminuria is very rarely obtained during pregnancy. Nor is it at all certain, according to Donkin, of Newcastle, and Sir J. Simpson and others, that puerperal mania is not due to the same cause. De Wecker, in *Ocular Therapeutics*, says that nephritic retinitis is a bad omen. Others state that loss of sight denotes advanced degeneration of the kidneys. Fryer quotes Dr. Howe as stating that when albuminuric retinitis occurs prior to the seventh month the rule is that the patient becomes blind, and death often occurs from convulsions during labor.

The facts are, however, as shown by my last case and many others, that at no time of pregnancy, whether it be in the first months or in the last few weeks, is the occurrence of albuminuric retinitis without danger both to the life of the child and to the sight and life of the mother, and, as I shall show further on, the stated opinions of men who are undisputed authorities bear out this statement.

Having shown the almost inevitable result of non-interference in this class of cases, what can be said of the results of interference? A search through the journals and books shows numerous examples of the good effect of this mode of procedure. Howe, Pooley, Moore, Cocks, and others have recorded cases wherein the retinal disease was clearly pronounced in which by removal of the fœtus sight was restored (Sajous's *Annual*, 1889). Thompson induced premature labor in the eighth month in a woman who had become completely blind in nine days. Result, V. = $\frac{20}{50}$ and $\frac{20}{30}$, returning in a few weeks.

Fryer (*Kansas City Medical Index*) relates a case of impaired vision in a woman five months pregnant. At the sixth month ophthalmoscopic examination showed neuroretinitis and the urine highly albuminous, with a specific gravity of 1·028. No other symptoms of kidney disease were present. Induction of premature labor was advised, but deferred. There was rapid loss of sight. Labor was induced. There were no convulsions. Health was restored, with atrophy of optic nerves and complete blindness. And so having shown, on the authority of well-known names, that interference by the production of abortion or the induction of premature labor is not only justifiable but imperatively demanded in nephritis in pregnancy, the next question is, At what time shall we interfere?

Noyes is content, in his work on *Diseases of the Eye*, to sum up the conclusions of Howe as being judicious and presumably as representing his own opinion. I quote the conclusion as follows: Induction of labor is warranted when retinitis appears early in the course of pregnancy and persists in spite of treatment, but is not warrantable in the last few weeks unless the symptoms are unusually severe.

Partridge says it would be well to emphasize the fact that premature delivery is not called for except in grave cases with marked subjective symptoms of uræmic poisoning and after thorough deliberation.

Again, Howe, quoting Professor Elliott, says: If the result is not satisfactory, hostile criticism will not be withheld, and if it is satisfactory and both mother and child are saved, it may be suggested that the operation was unnecessary, meddlesome, and hazardous. I would like to say here that the conclusions arrived at as above stated are not sound and are misleading. Inasmuch as retinitis occurring in pregnancy, whether it be in the early months or in the last few weeks, is always a symptom fraught with the greatest danger, and as it may occur with or without other subjective symptoms, we have no means of saying what the condition of the kidneys may be. Happening in the chronic form, we know that it indicates advanced renal disease, and nearly all are agreed that with a knowledge of its existence we can safely predict death within two years.

Occurring in connection with pregnancy, it does not, as a rule, indicate chronic but rather acute disease, but with the great bulk of cases in which it occurs the chances of effecting a cure during pregnancy are infinitesimally small, and most cases, if labor is not induced, will in the early months end in spontaneous abortion or in the later months terminate in eclampsia.

Knowing as we do that the mortality of mothers in puerperal eclampsia is from 30 to 50 per cent., and as a result of interference is only 2 per cent., and also that the mortality to infant life is, as Kilian puts it, 90 per cent. with non-interference and 50 per cent. with interference, we are justified in saying that there is no question of the advisability of interference in all cases of retinitis albuminurica in pregnancy. Nor are we justified in considering the remarks of Professor Elliott as quoted above. We are not, or ought not to be, concerned about public opinion in such cases. Possessing the knowledge that we do, it is our duty, having once arrived at a definite conclusion, to go ahead regardless of consequences or admit our cowardice and retire from the case.

In conclusion, I think I can not do better than draw the attention of the general practitioner to the conclusions laid down by the late Dr. E. G. Loring in the *New York Medical Journal* of January 20, 1883: "A marked deterioration with or without ophthalmoscopic change, and where blindness is threatened, premature labor is not only justifiable but demanded. And where permanent loss of sight remains, premature labor is justifiable in subsequent pregnancies. And it is the duty of the physician to impress on both the woman and her husband the future possibilities."

Also those of Pooley:

"1. In all cases of pregnancy not only should examinations of the urine be made systematically, but the eye should be examined with the ophthalmoscope, since in a large proportion of cases where eye trouble exists the patient makes no complaint of disorders of vision.

"2. In uræmic amaurosis, with or without change in the eye visible to the ophthalmoscope, even should the usual symptoms of kidney disease be absent, their supervention is soon to be anticipated and the immediate induction of premature labor is indicated without waiting until the life as well as the sight of the patient is in danger.

"3. In neuroretinitis the induction of premature labor is not only justifiable, but urgently demanded. In some instances it is called for even in the earlier months of pregnancy."

158 EAST EIGHTY-FIRST STREET.

WHOOPING-COUGH TREATED WITH OUABAINE.

By I. LINDSAY PORTEOUS, M. D., F. R. C. S. Ed.,
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All medical men have felt at times how utterly helpless they were in cases of whooping-cough. Every now and then a so-called specific is introduced, which in its turn is put aside for a newer and equally as useless a remedy. Nevertheless, it seems the duty of every physician to give his experience regarding a treatment of an intractable disease where it has proved successful in his hands. Over a year ago I noticed an article in the *British Medical Journal*, by Dr. Gemmell, of Glasgow, giving an account of a plant the alkaloid of which is ouabaine. I tried to obtain it in New York, but failed. Through the courtesy of a friend, I got some from London, and have been very fortunate in its results.

This alkaloid has a formula of $C_{30}H_{46}O_{12}$, and is obtained by crystallization from a watery extract of the roots of the ouabaïo, a plant nearly related to the *Carissa Schimperi*. Like strophanthus, the juice of the plant is used as an arrow poison by the Somalis of East Africa.

Prior to Dr. Gemmell's paper, Dr. Percy Wilde had recommended a trial of it in asthma and whooping-cough, probably from having read of the experiments of two Paris physicians, Professor Gley and Professor Arnoud.

Those gentlemen found that the $\frac{1}{2000}$ grain caused death to a frog by arresting the heart's action. In a dog $\frac{1}{975}$ grain markedly slowed the respiration without much cardiac disturbance; $\frac{1}{260}$ grain first stimulated then slowed respiration till it ultimately ceased completely.

Hypodermically it is more powerful than when given by the stomach; $\frac{1}{65}$ grain so introduced is fatal to a man. From the experiments of Dr. Gemmell, the standard dose for a child under five years is $\frac{1}{1000}$ grain every three hours in solution. This dose usually lessened the number of coughs and whoops. In two cases, however, where the children were much prostrated by the violence of the cough, $\frac{1}{500}$ grain and latterly $\frac{1}{250}$ grain was given every three hours. This is equal to about $\frac{1}{32}$ grain daily, which is nearly double the strength of the dose advocated by Professor Gley, who estimates the maximum daily dose for an adult as one milligramme ($\frac{1}{65}$ grain).

Dr. Gemmell, up to the time of writing his article, had treated forty-nine cases; twenty-five patients had been dismissed cured, and four had died (one from diphtheria, one from tubercular meningitis, one from capillary bronchitis, and one from gradual progressive emaciation). The remainder were still under treatment when he wrote. In no case did he notice any ill effects of the drug.

From accurate observation, Dr. Gemmell concludes that ouabaine is of marked benefit in all stages of the disease. In the first stage it cuts short the attack; in the second stage it reduces the violence and frequency of the cough and diminishes the number of whoops; and in the third stage it hastens convalescence.

It is interesting to note how little of the alkaloid in each case was required. In one case the whoops ceased after $\frac{1}{7}$ grain had been given. The time during which this was given was six days.

In another case, which was accompanied by severe vomiting and bleeding, $\frac{3}{10}$ grain was required, given at intervals of four hours for fifteen days.

I give the results of treatment of three of the cases which have come under my observation, as they are typical of the different varieties met with:

Case I.—S. M., aged fifteen months. After having a cough for several days, this little patient had a decided "whoop." On the following day she had at least four whoops. I was sent for and gave her $\frac{1}{4000}$ grain in solution every three hours. On the following day she had only two whoops and less coughing, and from that day she had no more whoops, and the cough, at the end of a week, had entirely left her.

Case II.—A. C., aged four years. This patient had suffered very severely for three weeks and was much emaciated. The attacks of coughing and vomiting were very frequent, and what has been called the "back-draught" threatened to suffocate the patient. I ordered $\frac{1}{2000}$ grain every four hours, and was very gratified to see, at the end of a week, an almost total cessation, not only of the whoops and vomiting, but of the cough.

Case III.—C. M., aged forty-five, domestic servant, contracted the disease from children in the house where she lived. She was so bad that she had to leave her place, and, of course, no one would have her. She had been treated by several physicians, and, from the number of empty bottles she had, had evidently partaken of most so-called specifics. She averaged six whoops an hour when I was called to see her, and also had an almost incessant cough. I ordered her $\frac{1}{500}$ grain every three hours. At the end of twenty-four hours the whoop had come down to one an hour; at the end of forty-eight hours, one every two or three hours; and at the end of a week from first commencing the alkaloid the whoops had ceased and the cough was less severe and less frequent.

My experience of the drug is much the same as Dr. Gemmell's. The action of ouabaine is evidently not cumulative. During the administration the pulse, temperature, and respiration are slightly lower.

It promotes the action of the skin after three or four days' treatment. The bowels act regularly, and the usual accompanying diarrhœa of whooping-cough is not, as a rule, present during the treatment.

It, like strophanthus, increases the flow of urine.

The appetite in all the cases in which I have used it was increased. Dr. Gemmell likewise noticed this. The toxic effects are considerable slowing of the pulse and respiration, and I think the latter is the one to be particularly on guard against.

REPORT OF A CASE OF ANEURYSM OF THE THORACIC AORTA, WITH PERICARDITIC EFFUSION.

SUDDEN DEATH FROM RUPTURE INTO THE LEFT PRIMARY BRONCHUS.

By HERMON C. GORDINIER, M. D.,
TROY, N. Y.

The following interesting and instructive case, which recently came under my observation, I deem worthy of recording:

B. K., aged thirty-five; occupation, sanitary inspector. He was of good habits; used stimulants very sparingly. Has two brothers living and in perfect health. Has been perfectly well since childbirth until March, 1891. Denies syphilis absolutely. The cause of his present illness was due to a heavy strain while pitching coal into the cellar. From this time on he had pains in the side attended with expectoration, also with shortness of breath. He was treated by Dr. H. for bronchitis for a period of six weeks. Not improving, he consulted Dr. Lyons, and I was called April 20th in consultation with Dr. Lyons. The patient was sitting in a chair with his hands on his knees gasping for breath. He was a well-developed, muscular man, weighing about one hundred and ninety pounds, short in stature. Lips, lobes of ears, and finger-ends cyanotic. No puffiness of face. Chest well developed. No œdema of chest or ankles. Chest perfectly symmetrical. Veins not prominent. No local bulging observable. Heart's apex in normal position; its impulse feeble. Right pupil dilated. Left moderately contracted. No epigastric pulsation. The movements of the left side of the chest were restricted. Auscultation of right lung was normal, of left lung showed a decided feebleness of the respiratory murmur, both anteriorly and posteriorly, with a diminution of vocal resonance, which was very feeble and appeared to come from a distance. A few moist râles were detected on the left side. A peculiar wheezing sound was heard, reminding one of a paroxysm of asthma The right side of the chest was superresonant on percussion. The left side higher in pitch and shorter in duration behind and in axillary region. Cardiac dullness apparently normal. No pulsation in episternal notch, nor anywhere over front or back of chest. The right radial pulse much smaller than left. The first sound at apex had lost its booming quality and was short and valvular, resembling the second sound. The second sounds, both aortic and pulmonic, were apparently normal, although feeble and distant. No thrills or murmurs were felt or heard while auscultating the heart or great vessels. Careful auscultation posteriorly in the intervertebral grooves was negative. Vocal cords normal. No difficulty in articulation or swallowing.

These symptoms taken collectively, in conjunction with the great pain, the great diminution of chest expansion and respiratory signs on the left side, with the normal position of the heart, the dyspnœa being relieved with the hands on the knees and the trunk bent forward, led me to believe that our patient was suffering from either an aneurysm or an intrathoracic growth, and I so expressed myself to the doctor. In favor of an aneurysm was the suddenness of the attack, coming on so shortly after great exertion; the great pain, which he described as being of a boring nature, and his general good health without the slightest emaciation. In favor of a thoracic growth were the entire absence of local bulging or expansile movement of the chest and the absence of murmurs of cardiac or of aneurysmal origin and of thrill.

Six weeks later I was again called by Dr. Lyons. I found the patient greatly excited, with a very anxious expression, unable to lie down. His lips, face, and finger-ends were cyanotic. Respiration, 50. Pulse, 120. Temperature, 100° F. Examination of the chest showed an almost complete lack of respiratory expansion on left side, with an evident bulging in the precordial region. Heart's apex not to be seen. On percussion, flatness was detected at the second rib, which extended in a diagonal manner downward and outward, an inch and a half below and two inches outside of the left nipple, and a finger's breadth to the right of the sternum. Over this flat area the heart sounds were feebly heard at base, but not at all at apex, and no friction or endocardial murmurs could be detected. Vocal fremitus, vocal resonance, and respiratory murmur absent over flat area. Outside of this area percussion was hyperresonant. Behind, a few moist râles, with broncho-vesicular breathing, were heard. A diagnosis of pericarditis with effusion was made and an operation for its relief advised. At 3.30 P. M. the same day Dr. W. W. Seymour was called in consultation, concurred in the diagnosis, and advised aspiration, which I performed, drawing off about an ounce of bloody serum. The following day the patient was much better, his dyspnœa greatly relieved, and in every sense he was improved. The improvement continued and the patient was able to go out on the street. I lost track of him, save to learn from Dr. Lyons that he was still suffering from that boring pain. I heard nothing more of him until his sudden death from hæmorrhage.

Post-mortem Examination at 5 P. M., September 2d (thirty hours after death).—Patient died suddenly. He was taken a few minutes prior to death with a severe pain in the side and coughed up a large quantity of dark, partially coagulated blood. Post-mortem rigidity well marked. Subcutaneous adipose tissue one inch thick and of normal appearance. Veins of chest dilated. A cicatrix between the fourth and fifth ribs denoted the situation of a former incision for aspiration. Only the thorax was allowed to be opened. The pericardium was markedly thickened and had several organized patches of lymph on its surface. There was a marked increase of fat on the external portion of the parietal layer of the pericardium. The pericardial sac was dilated and contained about four ounces of turbid serum, through which was distributed a quantity of fibrinous flakes. The heart was lying apparently in its normal position. Its weight was about fourteen ounces. It was relaxed, soft, and flabby in appearance. A marked deposit of fat was observed. Veins of heart overdistended. Right ventricle dilated. Right auricle of about the size of a lemon. Pulmonic and tricuspid valves normal. The cavity of left ventricle dilated. On section, the left ventricular walls were about an inch thick. Mitral and aortic valves normal, muscular substance soft, yielding readily to the pressure of the finger. Coronary arteries normal. Aorta thickened. The intima had lost its glistening, normal appearance, and, instead, was reddened, which coloration was not destroyed with firm rubbing with a wet sponge. Here and there atheromatous spots were plainly visible. The aorta's caliber was normal until the junction of the transverse with descending portion was reached. The carotid and innominate arteries normal. At the junction of the transverse with the descending portion of the aorta a marked dilatation was observed, and the aorta was very much thickened; this dilatation extended in a cylindrical manner for about four inches. On its outer side it had become firmly attached to the left primary bronchus and pulmonary artery, and on section it was found that the left primary bronchus with the adjoining larger bronchi and pulmonary artery were much narrowed. At the point of union with the left primary bronchus a perforation existed in the aneurysmal sac large enough to admit the entrance of the little finger, of an oval appearance, and in its orifice, projecting into the bronchus, a firm clot was found. The larger bronchi of the left lung were filled with blood-clots, as were all of the smaller bronchi, which probably occurred by aspiration as well as by gravity. The right lung emphysematous, otherwise normal save for a few tender adhesions on anterior and inferior surfaces of lower lobe. Left lung adherent at apex, and also on its whole posterior surface, by rather firm adhesions which were with difficulty separated. No fluid in either pleural cavity. Upper lobe of left lung on section normal. Lower lobe entirely filled with blood, having the appearance of one immense blood-clot. The interlobular fissure was effaced. No cause was discovered for the diminution in volume of the pulse of the right radial artery, the subclavian artery appearing normal, nor for the dilatation of the right pupil; this condition of pupil, however, was only temporary, as I afterward learned from Dr. Lyons that the two continued equal. The smallness of the right radial pulse may have been due to a congenital narrowing of the artery, or a unilateral endarteritis with consequent narrowing.

THE ADMINISTRATION OF GUAIACOL IODIDE BY THE INTESTINES

IN THE TREATMENT OF TUBERCULOUS DISEASE OF THE LUNGS*

By WILLIAM H. GREGG, M. D.

The use of antiseptic remedies in the treatment of consumption seems to offer the only hope of cure or abeyance in this intractable disease. When we speak of cure we mean that about twenty-five or thirty per cent. of the cases are curable; the other seventy or seventy-five per cent. are so amenable to treatment by this class of remedies as to enable the patients to follow their ordinary business pursuits with comparative comfort for a number of years. There is no universal panacea for this disease, and invalids who are induced by sophistical theories to abandon scientific methods lose valuable time and a possible chance of recovery. Guaiacol is certainly the most active therapeutic agent we possess at the present time for the treatment of pulmonary tuberculosis, but it has to be taken in large quantities. Physicians who are satisfied with a daily dosage of a few grains —a quantity too small to produce any marked effect—need not hesitate to give by this method thirty to fifty grains without fear of overdosing, since guaiacol does not become poisonous for man until a hundred grains have been absorbed.

This method of administering guaiacol offers the greatest encouragement, for under its use the patient soon recovers weight and strength. He assumes a healthier aspect and experiences sensations of returning vigor and comfort. The cough lessens, the expectoration becomes gradually less, the pulse diminishes in frequency, and a general amelioration of the symptoms is to be observed. Perseverance in treatment is the only sure course to pursue, and offers the only hope of permanent success. The stomach is remarkably intolerant to this class of remedies, and revolts even after a few grains have been taken. Hypodermic injections enable us to introduce larger quantities into the system, but only with the greatest precaution and by fulfilling the most difficult practical conditions. The remedies must be distilled to the required degree and the instrument absolutely aseptic, and to inject the necessary quantity usually occupies two hours.

With a view of overcoming these obstacles it was decided to administer guaiacol by the intestines. In those cases where it has been carried out it has been proved that this method has no drawbacks. The signs that the drug has been absorbed rapidly make their appearance, and in the most characteristic manner. The patient tastes the guaiacol almost at once; the urine changes color and becomes greenish black or blackish. The administration of guaiacol in an enema is a simple and practical method and one to which consumptives themselves do not object, and, in a word, gives such remarkable results that the therapeutical effect of the drug is carried to its highest power. One dose in twenty-four hours is sufficient.

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CUTANEOUS "GEROMORPHISM."

Dr. J. B. Charcot and Dr. Souques have described in the *Nouvelle iconographie de la Salpêtrière* a condition which is designated as cutaneous geromorphism. The latter word is a new one and is taken from two Greek ones which signify age and form or age and likeness. A case is described, with photographic illustrations, of a woman whose age was twenty-one years but whose physiognomy was that of sixty to seventy years. Her apparent senility was so striking that her father, aged fifty-two, had occasionally been asked if she was not his mother. The pathology of the case is limited to the skin, especially on the surface, and is a "decrepitude of the cutaneous system." Otherwise the girl had nothing old-appearing about her. Her hair was blonde and of average length. Her intelligence was good, her memory precise, and her judgment reasonable, but she was readily frightened when in a crowd or by a railroad and its noises; her emotional nature was fairly well balanced, but she was despondent on account of her appearance of age, which she had come to believe was incurable, and the slightest indisposition begot a fear of death. Her cutaneous sensibility was normal. The special senses of smell, taste, and hearing were normal. There was a slight impairment of vision, without contraction of the visual field or color-blindness; there was no arcus senilis. The hepatic, renal, and uterine functions appeared to be normally performed; a slight leucorrhœa had existed for two years. The wrinkling had begun about ten years before, at which time she received a great fright. She was then a bright, joyous child, very pretty and refined in her appearance, and always in the lead of her classes at school. When the change in the skin began, there was, for a short time, the formation of pimples, which persisted a few days and then disappeared without ulceration or mark of any kind. There was no œdema of the cutaneous surface. The wrinkling changes took place so rapidly that, it is stated, her friends were unable to recognize her if they had not seen her within the period of a fortnight; the skin at that time is described as resembling "the scales of a fish." No form of treatment, whether by electricity, hydropathy, or tonics, has been competent to improve her condition.

THE NEW YORK SANITARY AID SOCIETY.

This is the name of a truly philanthropic organization which labors to show how homeless but respectable men may be sheltered and benefited in an overcrowded city district. A cleanly lodging-house was opened in 1889, having a capacity of one hundred and forty beds, and in its first twelvemonth's term it provided forty-four thousand nights' lodgings, with baths at will. The house is a model structure, spaciously floored, well ventilated and well plumbed, with iron stairways and external fire-escapes. For ten cents the lodger can have a clean bed, a *robe de nuit*, a locker for his day-clothes, a bath, and, if he desires, a cup of coffee and a roll in the morning. Bathing is made compulsory where it is necessary, so that it is no fault of the society if the lodger does not make his exit in the morning a cleaner and more self-respecting citizen than when he came in. The ordinary lodging-house helps a man downward into insanitary and criminal associations; this one is a kind of intelligence office which often helps to find employment for those who want work. The society looks upward, not downward, and "lends a hand," and professes in its report to have for one of its chief objects the defense of "the sacred *breath-cube*," or three hundred cubic feet of pure atmosphere for every lodger, a standard that should be welcomed by every student of sanitation in our cities. The society states that a house of the high character that its is, when once fully equipped, becomes self-supporting. But it has an aim that is still higher, in that it hopes to see the establishment of municipally conducted houses where lodging may be had without any money charge, in exchange for a moderate amount of work. When this aim has been fully accomplished the miserable police-station and cheap lodging-houses will be superseded. It is on this principle that the Wayfarers' Lodge in Boston has been established and maintained successfully since May, 1890. It proposes to strengthen the self-respect of the men by exacting payment in labor, and by this sure test to distinguish misfortune from trampism by a process of natural selection. We can not certainly state that this is a "Yankee notion" in charity, but, if it is, it is worthy of imitation in every crowded city in the country that still has its homeless wayfarers and tramps who can, with a little pains and sympathy, be made over again into men.

MINOR PARAGRAPHS.

ETHER-DRINKING IN IRELAND.

Dr. T. J. Slafford, Medical Inspector, Local Government Board for Ireland, has recently furnished a report on the alleged prevalence of the use of ether as an intoxicant in certain portions of the north of Ireland. The ether used is methylated ether, which may be purchased at eighteen pence a pound, and not the pure ether, which costs about five shillings a pound. The chief centers for the sale of the drug have been Cookstown, Maghera, Omagh, and Draperstown, and the amount of ether sold annually was about one hundred and forty gallons; but since ether has been scheduled as a poison, the sales have very much decreased. The classes chiefly addicted to the habit are the small farmers in remote country districts and the fishermen along the shore of Lough Neagh. In Magherafelt women seem to be addicted as much to the vice as men, and regard the drug as an unfailing remedy for "flatulent dyspepsia." The amount taken by experienced drinkers is about a tablespoonful; those unaccustomed dilute it with water, and a draught is invariably accompanied by gaseous eructations; but where large doses are taken and the gas does not find an exit, there is much discomfort, with enormous distention of the stomach and a general tympanitic condition of the abdomen. It is said to cause acute and chronic gastritis and insanity, but the truth of the latter statement is not founded upon good grounds. The researches of Claude Bernard and Harley go to prove that ether, when taken repeatedly in large quantities, has the effect of producing artificial diabetes; but when it enters the circulation by way of the lungs, as in inhalation, it has no such effect. Ether no doubt produces a copious secretion of saliva and an increased flow of the gastric juice. The nauseous taste of ether is counterbalanced by its cheapness as compared with whisky and the absence of headache and vomiting after its ingestion.

FLUXION OF THE LACRYMAL GLAND.

M. Trousseau, who has had occasion to treat a rather nervous patient who from time to time, at variable periods, without relation to the general state of health, experienced a certain discomfort on the level of the left lacrymal gland, found there a hard body which rolled under the finger, and afterward noticed a sudden escape of a warm transparent liquid from beneath the eyelids, according to the *Mercredi médical.* Sometimes a current of air, wind or dust, entrance into an overheated place, the glare of the sun, or even a gay or sad moral impression, was sufficient to provoke this little accident. With this patient there were times when the lacrymal secretion was active, but the excretion suppressed.

As this may be the work of the vaso-motor or of glandular nerves, it presents a phenomenon analogous to that which appears after excitation of the central side of the lingual nerve and inducement of the centrifugal action of the chorda tympani, which causes the salivary secretion to become exaggerated. In this case the lacrymal nerve probably stimulates the gland to greater activity, while some nervous filaments cause the contraction of the muscular walls of the excretory ducts.

THE CLINICAL TEACHING OF INFECTIOUS DISEASES IN ENGLAND.

The medical students of London, it is said by the *Medical Press and Circular*, will soon have the opportunity of becoming acquainted with the commoner infectious diseases. A two-months' course of clinical instruction has been arranged at the Eastern Hospital, under the direction of Dr. Collie. The parents of these students are represented as expressing an anxiety lest the latter should contract these diseases while studying them, but this reassurance is offered by the journal mentioned, that as a matter of fact and experience a very small proportion of students in attendance contract any of these diseases. But whether this is the fact or not, it is advisable that men who aspire to treat these diseases should have opportunities of becoming practically familiar with their clinical manifestations. The journal goes further and states that the time must come when the attendance of students upon clinical instruction in these diseases will be made compulsory by the General Medical Council of Great Britain.

A NEW ESTABLISHMENT FOR HYDROTHERAPY AND ELECTROTHERAPY.

An establishment with this scope has lately been opened at No. 30 East Thirty-third Street by Dr. G. Manley Ransom. On visiting the house, and on talking with Dr. Ransom, a representative of this journal was recently brought to the conclusion that the conversion of an ordinary city dwelling into such a well-appointed and convenient bathing and electro-therapeutical establishment as Dr. Ransom had produced spoke as loud for his ingenuity as his manifest convictions did for his likelihood to carry on his bathing and electrical treatment in a manner to further, rather than thwart, the attending physician's purposes.

ITEMS, ETC.

The American Electro-therapeutic Association has been holding its first annual meeting in Philadelphia on the 24th, 25th, and 26th inst., in the hall of the College of Physicians. The preliminary programme included the following titles: The President's Address, by Dr. G. Betton Massey, of Philadelphia; Electro-therapeutics in America; an Historical Survey, by Dr. A. D. Rockwell, of New York; The Action and Application of the Faradaic Current in Gynæcology, by Dr. Augustin H. Goelet, of New York; Alternative Currents, by Dr. Horatio R. Bigelow, of Philadelphia; The Treatment of Corneal Opacities by Galvanism, by Dr. C. A. W. Alleman, of Brooklyn; Report of Seventy-five Cases of Uterine Myomata treated by Electricity, by Dr. J. H. Kellogg, of Battle Creek, Mich.; Two Cases of Fibroids where Electricity ceased to control Hæmorrhage after a Time, although eminently Satisfactory at First, by Dr. H. E. Hayd, of Buffalo; The Treatment of Fibroids by Electricity, by Dr. W. H. Hutchinson, of Providence, R. I.; Electro-puncture in Uterine Fibroids, by Dr. G. Betton Massey, of Philadelphia; Electricity in Chronic Parametritis, by Dr. von Raitz, of New York; Report of a Case, by Dr. A. H. Buckmaster, of Brooklyn; Some New Applications of Electro-therapeutics, by Dr. Frederick Peterson, of New York; The Analgesic Effects of Galvanism, by Dr. Landon Carter Gray, of New York; Electricity in Diseases of the Stomach, with Exhibition of a Patient, by Dr. Lawrence Wolff, of Philadelphia; Electricity in Carcinoma, by Dr. Robert Newman, of New York; papers by Dr. W. J. Morton, of New York, and Dr. Henry McClure, of Cromer, England; Some Points in the Technique of Electrolytic Epilation, by Dr. Plym S. Hayes, of Chicago; A Rare Case of Twin Extra-uterine and Intra-uterine Pregnancy treated by Electricity, by Dr. G. H. Whitcomb, of Greenwich, N. Y.; Electricity in the Treatment of Rheumatism, by Dr. W. F. Robinson, of Albany; The Treatment of Subacute Articular Rheumatism by Electricity, by Dr. M. A. Cleaves, of New York; Electricity in Ankylosis, by Dr. von Raitz, of New York; Has Electricity any Action as a Germicide, or in producing Poisonous Results in Food? by Dr. W. R. D. Blackwood, of Philadelphia; Exhibition of a Rectal Electrode, with Remarks on its Application, by Dr. Guy Hinsdale, of Philadelphia; Abdominal Electro-puncture in an Ovarian Tumor, by Dr. G. Betton Massey, of Philadelphia; Eight Months' Work in the Dispensary for the Treatment of the Diseases of Women by Electricity, by Dr. H. R. Bigelow, of Philadelphia.

The Annales d'oculistique.—This long-established and widely known ophthalmological journal, conducted during many years with distinguished ability by the late Professor Warlomont, has, since the death of that illustrious leader in ophthalmology, passed into the editorial hands of Dr. Valude and Dr. Sulzer, who have transferred the office of publication from Brussels to Paris. The new managers have doubled the size of the journal, and promise to increase its usefulness. Dr. George T. Stevens, of New York, the American collaborator, will report matters of ophthalmological interest from this country. Those who are familiar with the *Annales d'oculistique* have already observed a very marked change in the prominence given to American literature in the last two numbers.

The Process of Recovery from the Fatigue occasioned by the Electrical Stimulation of Cells of the Spinal Ganglia.—C. F. Hodge reports (*Am. Jour. of Psychol.*, February, 1891) the results of his experiments on cats, giving the details thereof, and shows conclusively that there is a decided shrinkage of the ganglia after stimulation, and that, if left to rest for some hours, they resume more or less their normal condition. The recovery is a slow process and is not complete till twenty-four hours after the stimulation. He also speaks of the rhythmical changes of the ganglia, such as during sleep and the waking periods, and states that in English sparrows particularly he has been enabled to observe that at night during their sleep the shrinkage of the spinal ganglion cells surpasses in degree even that obtained by most intense electric stimulations of the same.

The University of Vienna.—The successor to Professor Carl Braun has been elected in the person of Dr. Friedrich Schauta, of the University of Prague, the author of a manual of operative midwifery and numerous lesser works. He will occupy the chair of midwifery and conduct the first obstetrical and gynæcological clinique.

The late Dr. Peter Pineo, a surgeon who achieved distinction during the recent civil war, died at his home, in West Somerville, Massachusetts, on the 10th inst., at the age of sixty-six years. For several years he had not been engaged in general practice.

Changes of Address.—Dr. Hermann Goldenberg, to No. 26 East Sixty-second Street; Dr. John C. Jay, Jr., to No. 54 West Forty-seventh Street; Dr. J. Francis Wouters, to No. 304 West Twenty-ninth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 6 to September 12, 1891:*

HUNTINGTON, DAVID L., Major and Surgeon. The leave of absence granted is extended to include September 30, 1891.

HEIZMANN, CHARLES L., Major and Surgeon, is relieved from duty at Fort Clark, Texas, and ordered to Fort Douglas, Utah, relieving Surgeon WILLIAM D. WOLVERTON, who, upon being relieved, will proceed to Fort Schuyler, New York, and report for duty at that station.

HUNTINGTON, DAVID L., Major and Surgeon; MCELDERRY, HENRY, Major and Surgeon; REED, WALTER, Captain and Assistant Surgeon; and GANDY, CHARLES M., Captain and Assistant Surgeon, are appointed members of a board of medical officers to meet in New York city, October 1, 1891, for examination of candidates for admission into the medical corps of the army.

CRAMPTON, L. W., Captain and Assistant Surgeon, is granted leave of absence for fifteen days.

Society Meetings for the Coming Week:

MONDAY, *September 28th:* Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *September 29th:* Boston Society of Medical Sciences (private).

WEDNESDAY, *September 30th:* Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield).

THURSDAY, *October 1st:* New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Washington, Vt., County Medical Society; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *October 2d:* Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *October 3d:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Proceedings of Societies.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Second Triennial Meeting, held in Washington, on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

THE President, Dr. S. WEIR MITCHELL, of Philadelphia, in the Chair.

The Address of Welcome.—Dr. William Pepper, of Philadelphia, in the course of a short address inaugurating the business of the general session, said that it was no light matter to share in an organization which stood for so much as did this Congress of American Physicians and Surgeons. It was through the participating societies alone that membership in it was to be acquired. So that while, doubtless, each society has already been watchful as to the scientific qualifications of every applicant for admission to its ranks, it was to be hoped that this watchfulness would be doubled by the remembrance that such admission carries with it the right of membership in the larger and more strictly scientific body. While, too, it needed but a reference to the records of the participating societies to show the highly creditable character of their work through successive years, it should surely act as an incentive to the maintenance of an even higher standard to remember that the level reached by each will affect the fame and force of the congress, which must clearly be, in a peculiar sense, the exponent of the highest medical attainments at the bar of national and international opinion.

It might be doubted if further steps were needed in the organization of the medical profession in this country. The great series of local, county, and State societies, culminating in the powerful American Medical Association, formed a representative system the most perfect possible for the entire profession; and to this there had been added a series of national special societies and the conjunction of these in the present congress.

It would seem as though the friendly and harmonious coöperation of these bodies, animated by the common purpose of promoting science, serving the community, and elevating the profession, might be trusted to secure these noble aims.

The Conditions underlying the Infection of Wounds.—The discussion covering this subject in its various aspects, including a consideration of disinfection with reference to treatment, the relation of bacteria to suppuration, the resistance of tissues to the multiplication of bacteria, and the effects of antiseptic agents on wounds, was opened by Dr. W. H. Welch, of Baltimore. He considered the presence of certain kinds of bacteria an essential of wound infection, and the practical result of the application of the doctrine to the management of wounds as the most eloquent testimony to its life-saving truth.

Observations as to the relative frequency of the occurrence of the ordinary pyogenic staphylococcus and streptococcus were not altogether in accord. The majority of investigators had found the *Staphylococcus pyogenes aureus* the most common cause of suppuration. Other observers had found that the *Staphylococcus pyogenes albus* was by far the most frequently present in all kinds of suppuration, as in abscess, cellulitis, lymphangeitis, osteomyelitis, etc.

The *Staphylococcus pyogenes albus* was generally described as not differing essentially from the yellow. The most important differences were greater slowness in the liquefaction of gelatin and in the coagulation of milk.

There existed a great difference in the powers of the various pyogenic cultures. Again, it had been demonstrated that large numbers of such cocci might be inoculated into the living healthy tissues without evident effect. No doubt the result was greatly influenced if these pyogenic germs entered tissues already charged with poisonous material. Sometimes a very small number of cocci would produce marked effects accompanied by other toxic substances, and the result would bear relation to the intensity of these substances. In practice we often had to do with impure cultures with which were mixed all kinds of pus-producing elements, and therefore the material might exert a degree of virulence that laboratory cultures did not possess.

The skin might have all sorts of bacteria on its surface, but in addition it had its own distinct bacteria. The prevailing organism was the *Staphylococcus albus*. It would be found at a deeper level than could be reached by any known process of skin disinfection. These cocci were frequently found in skin stitches, and were present without causing inflammation. They, however, no doubt played an important part in the stitch abscess.

There was no reason to doubt that the pyogenic cocci were special agents of infection, but the effects which they produced depended upon the variety of conditions in the soil in which they found place and upon the toxines with which they were accompanied.

Dr. Roswell Park, of Buffalo, continuing the subject, thought the study of wound infection inseparable from that of immunity, and when we had learned that which constituted or favored immunity, we should approach nearer that which was now a *terra incognita*. Immunity was a complex condition, not dependent upon any single factor, and from pathological interest as well as from clinical importance. Our endeavor now must be to analyze the main question of what constitutes or confers immunity, and try to recognize and then solve its various subordinate queries. This statement, too, was inseparable from another to the effect that the surgery of to-day should aim to be aseptic and not merely antiseptic. In other words, we should abolish sepsis and not merely aim to antidote it or conquer it when present. The condition of sepsis was a complicated one, consisting of a poisoning by ptomaines, toxines, and albumoses having widely different properties. Some of these substances were so antagonistic that one might neutralize the other. In the intestinal canal there were produced poisonous substances which were taken up by the absorbents, but then were filtered out by the liver before reaching the systemic circulation. It was by virtue of this depurative action of the liver that many cases of septic intoxication in surgical patients were avoided. In a division of the general subject of blood poisoning, a condition which might be called intestinal toxæmia or entero-sepsis deserved a distinct place. This occurred not infrequently, and might merge into a condition of sapræmia or septicæmia, but, if promptly checked, there was a speedy return to a desirable condition both of wound and patient. By no means did all cases of surgical sepsis have their origin in or about the wound.

We had learned a little in reference to the antagonism of different bacteria and the poisons which they produced. A microbe might enter the system and produce a proteid or albuminose poisonous to the animal, while the introduction of some other substance might neutralize this poison and save the animal. The principle was the same whether the antidotal poison was injected as such or a second species inoculated by which it might be produced. Brunton had suggested that blisters did good in this way by an endermic administration of proteids derived from the blood, but so altered in their passage from the vessels as to have a different effect, and probably by their chemotactic properties. He also suggested that bleeding might act in a similar manner, as it had been shown that the abstraction of venous blood caused an absorption of proteid matters from the tissues, and these might have an action of their own on the tissues with which they came in contact. The benefits of free purgation probably found here their proper explanation.

The term chemotaxis related to that faculty possessed by all motile bacteria of moving toward or away from certain substances which seemed to attract or repel them. The same power was inherent in the plasmodia of myxomycetes as well as in various other unicellular organisms; and leucocytes, if not other cells of the human body, possessed the same property. Chemotaxis was spoken of as positive or negative, as there appeared to be attraction or repulsion. Among the most actively positive chemotactic substances were cultures of bacteria; these were powerfully attracted by the leucocytes. The effect was the same whether the cultures were alive or had been killed by boiling; the active agent was some product of the life and growth of the bacteria. The leucocytes thus attracted acted as scavengers for the surrounding tissue.

These facts had an important bearing upon questions which vitally concerned the surgeon. In the light of these researches it was difficult to see how the possibility of phagocytosis could be denied. This process loomed up in a flood of light when one discussed the phenomena of suppuration or of other kinds of infection as well as of recovery or immunity therefrom. Support of the phagocyte theory had come from the work of Hankin on defensive proteids. From the spleens and livers of various animals he had isolated the proteid which had the power of killing bacteria, and had found that this, while absent from normal blood, could be obtained from the blood of febrile animals.

The separation of dead and dying matter was a process in which the formation of proteid material figured largely. These facts had an important bearing on the use of so-called antiseptic agents. The ideal antiseptic was probably blood serum, its parasiticide properties being in all probability connected with the existence in it of a globulin which is soluble only in a weak solution of common salt. This may explain the well-known antiseptic action of common salt.

It had been stated that by no means all the sources of sepsis concerned the wound itself. The other principal sources of infection might be classified as follows:

1. Previous long existent toxæmia, such as syphilis, diabetes, acetonæmia, lithæmia, alcoholism, and malarial disêase.

2. Previous anatomical changes which reduced vitality, such as inherited diatheses, old age, amyloid change, and chronic and acute nephritis.

3. Recent or acute toxæmia, such as uræmia, typhoid, intestinal toxæmia, and stercoral toxæmia.

4. Other acute conditions, such as starvation, scurvy, and anæmia.

5. Conditions of environment, such as bad hygienic surroundings.

6. The effect of anæsthetics.

7. The effect of antiseptics.

Antiseptics might favor infection in more than one way. Mercurial and iodoform poisoning were not uncommon. When this was established, the case became one of acute toxæmia. The wounds might fail to unite and suppuration occur again, or the chemical reaction between the vital fluid and the antiseptic might cause a loss of the properties of the antiseptic agent, while the tissues on which it acted might have their constitution so changed as to favor rather than resist infection. Investigations made it appear best to keep all antiseptic agents away from absolutely clean, fresh surfaces. The value of blood serum as an antiseptic had been abundantly shown. This would be poured out in quantity sufficient to serve not only as a cohesive but as an antiseptic agent. The question here arose as to what was the best antiseptic. It would appear that for most purposes peroxide of hydrogen was the ideal antiseptic, as it not merely destroyed living organisms, but, by oxidation of undesirable and infected material, acted as a scavenger of the tissues. We, however, had yet to learn how to make use to the fullest advantage of the properties of blood serum.

Direct infection might be of two varieties—self-infection and contact infection. The principal sources of contact infection were as follows: 1. Skin and hair. 2. Instruments. 3. Sponges or their substitutes. 4. Suture materials. 5. The hands of the surgeon and his assistants. 6. Drainage materials. 7. Dressing materials. 8. Miscellaneous objects, such as drops of perspiration, an unclean irrigator nozzle, the nail-brush, the clothing of the operator or bystanders, etc.

The best plan of sterilizing the skin was by shaving, followed for a day or two, if there was time, by some antiseptic ointment properly prepared. The skin should then be washed with the sapo viridis of the German Pharmacopœia with five per cent. of hydronaphthol. Then there should be worn until the time of operation a compress wet with some liquid non-irritating antiseptic, such as creolin, or lysol (five per cent.), or hydronaphthol in saturated cold aqueous solution. At the time of operation there should be a final scrubbing with hydronaphthol soap, with shaving, and then the skin should be washed with equal parts of alcohol and ether or alcohol and turpentine. Where there was not time for this we must content ourselves with the thorough use of the nail-brush, the razor, and antiseptic soap, with the subsequent use of alcohol and ether.

Instruments were best prepared by dry sterilization, as this injured them less than other plans.

In regard to sponges, there was nothing to be added to the well-known directions. It would seem better to use some cheap absorbent material, which after use could be thrown away.

Silk was best sterilized by placing it in a test tube, then plugging, and keeping for an hour in a steam sterilizer upon two different occasions. Silk-worm gut might be prepared by immersion for a few hours in a one-per-cent. aqueous solution of corrosive sublimate and then preserving in alcohol. Catgut was best prepared by immersion in benzine or ether to remove fat. It was then dried and soaked for one or two days in a one-per-cent. watery solution of corrosive sublimate, after which it was dried and transferred to oil of juniper berries, and from this to strong alcohol containing one per mille of corrosive sublimate. In this, if desired, it could be boiled. It might be chromicized before putting in the oil of juniper.

The hands, even after having been in contact with septic matter, might be sterilized by the following method: Wash with soap and water, using a nail-brush. Then wash the hands and arms with flour of mustard as though it were powdered soap. This would remove all odor. Then wash with sapo viridis [G. P.] to which has been added five per cent. of lysol, creolin, or hydronaphthol. Then rinse and immerse in a strongly colored solution of permanganate of potassium. They were then rinsed and immersed in a solution of oxalic acid sufficiently strong to decolorize the skin in two or three minutes. The oxalic acid was rinsed off and the hands might be considered aseptic.

Drainage was probably required only in septic or infected cases.

After an ideal aseptic operation we needed only a sterilized and a protective dressing. In some cases there might be advantage in impregnating the dressing with some antiseptic.

Among miscellaneous sources of infection might be mentioned the use of an unguent applied to the skin to prevent the adhesion of dressings. Experiments had shown that ointments made with even ten per cent. of resorcin or naphthalin, without the application of heat, contained bacteria. The same ointments heated to the temperature of boiling water seemed to be sterile and to suffer only from air contamination.

Dr. Park presented the following conclusions:

1. Study of wound infection and of the septic condition thereby produced is inseparable from a study of what constitutes immunity.

2. By a study of immunity is furnished the best clew to a due appreciation of the principles of asepsis.

3. The surgery of the future must aim to be aseptic, for, so far as fresh cases are concerned, we have passed the merely antiseptic era.

4. Asepsis is to be achieved not alone by attention to the wound and the paraphernalia of operation, but by the closest regard to the condition of the patient's organs and tissues.

5. Sepsis may arise from circumstances and conditions other than those pertaining to the wound itself, although hitherto practitioners have been too prone to scan solely this field when searching for its cause.

6. Sepsis and infection are combated in more than one way by natural agencies and by inherent properties of cells and fluids totally aside from the measures which the surgeon institutes, and the wisest man is he who studies to take advantage of these vital activities rather than introduce new and conflicting elements from without.

7. A recognition of the power of chemotaxis, possessed by organized and unorganized materials in such varying degree, can be utilized to great advantage so soon as it can be reasonably and clearly defined.

8. A study of chemotactic activity appears to impress one with the truth of the phagocyte doctrine, which, if proved, is one having a large bearing upon the principles as well as the practice of the surgery of the future.

9. The proteid material contained within cellular infectious organisms both plays such a *rôle* in causing chemotaxis, as well as in poisoning the animal infected, that we have reason to eagerly welcome all knowledge concerning it.

10. So fast as such proteid material can be isolated we need, among other things, to study its effect upon the commonly used antiseptic agents.

11. We need to study much further the antitoxic and bactericidal properties of human blood serum, and the means by which we can avail ourselves of the same.

12. Some such classification as I have attempted to give of the various causes of lowered resistance to infection, or of the causes of vulnerability or susceptibility, will certainly assist in a due appreciation thereof, and will often aid in so fortifying the patient that he may resist infection, to which he would otherwise succumb.

13. The condition of enterosepsis, fæcal toxæmia, stercoral intoxication, or whatever it may be called, is certainly one which every practitioner has to fear, and against which he should assiduously guard. It is not generally enough recognized and combated.

14. A sub-form of this condition might justly be made and entitled gastrosepsis, comprising cases where defective stomach digestion, often from dilatation, brings about a lithæmic or other toxæmic condition, which favors infection.

15. Antiseptic agents in the past have worked a revolution in surgical practice and results. We have now reached a time when we know that they all have their disadvantages, and also understand how, if we are strictly antiseptic in our work, we can afford to discontinue their application to wound surfaces.

16. But the insurance of aseptic character of such work necessitates the use of antiseptic agents of some kind upon everything which may directly or indirectly come in contact with these surfaces.

17. When this work is strictly aseptically performed, the use of drains or further employment of antiseptics is either an expression of mental uncertainty or of fear. It may be in the interest of humanity, undoubtedly it often is, but it is not attaining the ideal of scientific work.

The President's Address.—In the course of the introductory portion of Dr. S. Weir Mitchell's address, on The History of Instrumental Precision in Medicine, he made some special comments upon the growth and present status of specialism in medicine.

Specialism in medicine was of recent birth. He could remember when older physicians refused to recognize socially a man who devoted himself to the eye alone. To-day they could only look back with wonder at such narrowness. Specialism in medicine first arose by the wholesome and gradual evolution of the individual specialist out of the general practitioner; but to-day the special physician was medically born, and too apt to select his branch before he is weaned from the breast of his Alma Mater. All such men would be better doctors if they had back of them more years of general clinical labor. A broad-minded student of the eye once said to the speaker, "We should all be the better for an hour or two a day in a general hospital ward," and added, loyally, "the very great relative perfection of the therapeutics of visual disorders is an intellectual risk." And if Cornelius Agnew could say that, we might well fancy that a too exclusive study of the eye resulted in mental egotism. If men as old as he were ready to acknowledge this danger, for the young man the pursuit of but one line of practice was only too apt to result in an overestimate of his fitness, in hasty papers, mere case reports, wild pursuit of novelties, and the production of numberless minor text-books which could have but a selfish use.

They had all come to admit gratefully the value of specialism in medicine; but he who was watchful over the general interests of his profession must have seen that these subdivisions of labor involved certain perils, which were seen on the one side by the general practitioner, and on the other by those who, in a large-minded way, pursued limited lines of work. Medicine did not grow in an even fashion. When watching a saline solution under the lens, we observed some brilliant crystal shoot out in advance and hold its place until the rest, more slowly but surely, joined or passed it, and here we saw an image of that which continually illustrated medical progress. To-day it was surgery which won; a few years ago it was ophthalmology, which, in newly acquired precision and in predictive accuracy and therapeutic gains, had set up for us novel standards of exactness and, enriching our symptomatology, cast light in many directions. The mere physician seemed to be hopelessly left behind, but now again it was pure medicine which had gone to the front.

What the specialist learned until it was commonplace was not easily enough assimilated by the mass of practitioners. At last, however, came a time when it was, and then the whole body of medicine felt the gain in nutrition and repaid the debt. The masters of our still most perfect art, medical optics, might wisely remember that it was physicians who most distinctively recognized and diffused the knowledge that headaches and some other brain disorders were due to eye strain, and thus, while lessening their own futile labors, crowded the waiting-room of the ophthalmologist.

The speaker could easily show, by added proof, what they all lost by not keeping close touch of one another's gains. The criticism of the specialist was that the general practitioner did not early enough ask his help in difficult cases. The largely educated and generally occupied physician felt that limitation of attention to organs, the eye, the ear, the womb, was apt to lead to a too entire trust in local means, and to neglect of those patient methods which ought more frequently to call for the added counsel of the general physician; for nowadays the patient often resorted at once to the specialist, and it was the ophthalmologist who saw, or who ought to see, the first signs of specific disorder, of spinal troubles, and of asthenic states. Whether justly or not, the thoughtful general practitioner was to-day distinctly of opinion that the absence of grave mortality after operations which once were so fatal, has created a vast temptation for the younger surgeons.

The speaker believed that too often and too promptly the gynæcologist resorted to but one drug, and that steel in the trenchant form, when perhaps the state of the body made operations doubtful as to their remote usefulness, or that he condemned to sexual neutrality some who, under patient medical treatment with careful inattention to the sexual organs, might have had preserved for them the inestimable possibilities of the wife and the mother.

And, too, there was the other side of the shield—the general practitioner who saw the beginnings of disease and did not correctly interpret them, or early enough ask counsel. He regarded as rheumatic the neuralgias due to the faint beginnings of spinal disease. He treated headache or vertigo by general means, and allayed them by drugs, when in an hour the physician of organs would tell him that it was feeble muscles, astigmatism, ear trouble, or nasal disease which was the parent of the malady.

Did he not observe signs of broadening in the views of specialists, he should have increasing fears as to the usefulness of these specializations of practice. Even as to the alienists, he saw the growth of a tendency to put aside the title of "superintendent of asylum," and to come into relation with neurologists and with a less restricted professional life. He trusted they would not pause there, for he was sure that, until asylums became hospitals, and had their outside staff of attending physicians who did not live in eternal contact with the insane, we should not develop the best possibilities for the treatment of the alien in mind. They could not safely permit any class of specialists to drift away from general and frequent contact with the general body.

As he had mentioned the need for continuous individual cultivation on a broad scale, and for personal consultation, he would like to enlarge the plea and call a meeting like this a general consultation. And this, in fact, it was; a focal point for condensed opinions, for authoritative statements, for criticism from varied standpoints, and for significant indications as to those accepted gains which ought to become, from time to time, a part of the mental equipment of all other special, and indeed of all general, practitioners.

Nowhere else had a plan like this brought together such a body of experts as he saw before him. And the large task which the years offered—what was it? Not only was the organization exceptional in construction, but this congress had national aspects. It was a collection of the ablest men in the American profession. Let us not lose sight of the fact that much of what, in older lands, was acquired knowledge was with us to be won anew. Our climatology had yet to be medically handled in full, and as to this and the relation of the seasons to disease, we were helped by the growing usefulness of our weather bureau. Nowhere else was there a country in which the extent of territory covered by weather reports was such as to make its results medically available in relation to disease. Even in Europe the influence of season on disease had not yet been fully studied. As an evidence of its peculiar effects here, and of the value of the weather service reports as an aid to their study, they would recall Wharton Sinkler's interesting proof that the paralysis of childhood (acute anterior myelitis) was a disease of the summer months. The speaker could but allude, also, to the masterly paper of Morris Lewis on The Relation of Acute Rheumatism to the Storm Centers, and, if they would pardon him, to his own study of The Relation of Chorea to the Weather Charts and of Traumatic Neuralgia to Storms, all of which work would be impossible had we not the maps and reports of the Signal Service.

We had, as yet, to investigate our countless mineral springs, many of them, as in the Yellowstone Park, unlike any elsewhere known.

The modifications which race brought into the classical types of disease were also before us for analysis; and, as was already known, the negro was relatively less subject to malaria than the white, and also to some neuroses, such as chorea and probably locomotor ataxia; while, as to him and the Indian, we had still much to learn.

And if in climatic therapeutics we had discovered the value of dry cold air for certain lung diseases, and had taught and made available camp life to invalids, securing for such and other noble uses parks as large as some European principalities, surely immense triumphs awaited us in these directions when we had more completely studied the large alterative means afforded within twenty-five degrees of latitude, and nearly three million square miles of varied soil, with every variety as to altitude and geological formation.

The swift social changes of this age and country awaited, too, our study in the future, with novel problems as to how the woman was being, and is about to be, influenced by a masculine education, and the acceptance on her part of male standards of work and capacity. All the vast hygienic, social, and moral problems of our restless, energetic, labor-craving race were, in some degree, those of the future student of disease in America. From this bewildering spectacle of striving millions he would like now to ask his hearers, as scholars and physicians, to go back with him a little to more tranquil days, and, amid the stirred dust of unused books, to catch a glimpse of some of the processes which had gone to the final making of what those present so well represented—Precision in Medicine.

It had long been in his mind to make use of the studies he had made, from time to time, in regard to the introduction into medicine of such accuracy as could only come from the use of instrumental aids. The fact that he was to have before him tonight a set of experts trained to a nicety in modern methods had tempted him to think that he would here find an audience appreciative of a chapter of medical history hitherto unwritten. The work had grown upon his hands, and his chief difficulty had been so to limit it in the telling as not to task the patience of his hearers. An hour seemed to have been set by common consent as the reasonable limit of human power to listen to one man's talk; and, if they would regard this present minute as his starting point, he would try not to exceed it.

When he was yet a lad there had then been alive men who could recall the day when what a patient said, and the physician saw and felt, were all that a case of disease had to tell him. We could not now realize the extent of this limitation, because instruments and methods of precision had so interpreted what we merely saw, felt, and heard, that, even though we should again be forced to rely upon our unaided senses, we should stand on higher levels of knowledge than our medical fathers. The limitations they had suffered under had lured or driven them into attempts to classify and minutely to multiply the signs of disease, until what they believed they saw and felt represented impossible refinements in symptomatology, and the imagination was called in (as it had been in homœopathic provings) to assist the intellect beyond the boundaries of the possible in observation.

We knew, alas! that we now used as many instruments a a mechanic, and that, however much we might gain thereby, our machines were not labor-saving. They forced us, by the time their uses exacted, to learn to be rapid and at the same time accurate. Thinking over the number of instruments o precision a single case might require one to use, it was clearly to be seen that, no matter how expert we might be, the diagnostic study of an obscure case must to-day exact an amount of time far beyond that which Sydenham may have found need to employ. A post-mortem section used to take us an hour or more, and now, alas! it went on for weeks in some shape until the last staining was complete, the last section studied, the last analysis made.

These increasing demands upon us were due to the use of instruments of precision, or to accurately precise methods. As in factories more and more exact machines had trained to like exactness a generation of workmen, so with us, the use of instruments of precision, rendering the comparison of individual labor possible, had tended to lift the general level of acuteness of observation. The instrument trained the man; it exacted accuracy and taught care; it created a wholesome appetite for precision which, at last, became habitual. The microscope, the balance, the thermometer, the chronograph, had given birth to new standards in observation by which we lived scarce conscious of the change a generation had brought about. Certain interesting intellectual results had everywhere followed the generalization of precision by the use of instruments, like the world-wide lesson of punctuality taught by the railway and made possible by the watch. We had so often timed the pulse that most of us could guess its rate, and constant use of the thermometer enabled one to trust better one's own sense of heat as the hand appreciated it. If, indeed, we used the sphygmograph much, we got to making visual images of the pulse-curves whenever we very carefully felt a pulse. There was a crude illustration of the yearning after this sort of result in a paper on the pulse, as far back as Fouquet, in 1768. His curious diagrams of the pulse-curves, as they had appeared to his mental vision, the speaker had put on the board.

A better example of the training given by instruments was the fact that a careful study of Harrison Allen's work, with Muybridge's photographs, at last, enabled the unaided eye to see in truthful order both the swift changes of convulsive acts and the normal movements of man. The subject was a tempting one and admitted of much illustration.

Were the speaker not talking to a selected group of experts, he might also dwell on the risks our instruments of precision brought to the lazy or the unthoughtful; as when one looked only at the readings of his thermometer as placed in the axilla or mouth, and neglected the temperature of the extremities, or, cheated into satisfaction by the trusted certainty attained as to single symptoms, lost power or desire to reason on the grouped relation of the complex phenomena of disease. For, unless men kept ahead of their instrumental aids, these, to coin a word, would merely dementalize them, and but measurably lift the mass without in proportion advantaging the masters of our art, who had so easily been masters in days when the erudite touch was more uniquely advantageous than it was to-day.

He asked his hearers to come back with him, then, they who were veterans in observation, drilled to use every engine of research, to come and see the first growth of that instrumentally helped precision which so many present had usefully advanced. The story had its romance; its broken hopes; its failures; its heroes, now lost to memory; and, too, its moral lessons. The pleasure it had given him made him wish that our great schools possessed chairs of medical history, and that amid our too busy life more of us could acquire some part of the interest which for him the history of his art had always had. Without the great Library of the Surgeon-General's Office, he should have had no story to tell; but, even good as was that noble collection, it had failed him in the last year as to some twenty books he had wanted. One of them was not in any London library, and one had been lost from its place in the great French Library. What he would ask those present to hear would be but a sketch, and even of this he must omit in the reading a too large part.

All the Lives of Galileo were not in any American library, and it had been seven years before Quaritch had found for him the one book of Sanctorius he had finally needed. A valuable essay could be written about this whole subject. The history of the balance in medicine was yet to be told; that of the microscope had been enough dwelt upon. We wanted a book about medical discovery somewhat like Whewell's *History of the Inductive Sciences.*

He would confine himself almost entirely to the story of the earlier efforts to attain accuracy by instruments in the study of the pulse, respiration, and temperature. It was not in the books of medical history. It was here and there in memoirs, journals, lay biographies, rare old folios, and forgotten essays.

The latter part of the sixteenth and the first half of the seventeenth centuries had been a germinal period in medicine. It had seen advances in anatomy and physiology which had led up to Harvey's splendid discovery. It had seen, too, the failure of his thesis to influence medical practice immediately or largely. The same period in Italy had beheld the first attempts at precision as regarded temperature and the study of the pulse. This had been the birth era of instrumental accuracy in medicine, but many a day had gone by before the infant had attained to useful manhood. Most strange it was that the seeds of scientific thought as to the first heat records and the pendulum had been cultivated in the garden of medicine. Between 1593 and 1603 Galileo, some time a student of medicine, invented the crude open thermometer or thermoscope.

The thermometer of Galileo was, as he had drawn it, a tube of glass, open below and ending above in a bulb. This bulb having been warmed, the open end of the tube was set in water, so that, as the bulb cooled, the water rose in the tube. Then any heat applied to the bulb caused the water to descend, the reverse of that which occurred in the more modern instrument. This coarse thermoscope was obviously a barometer as well as a rude measurer of the change of temperature. A slight loss in the weight of the atmosphere might easily neutralize an increase of heat. It was not an accurate instrument, nor had Galileo seemed to rate it highly, since he nowhere mentioned it in his works. Others thought more of it. The approximate date of this invention had been set for us by one Padre Benedetto Castelli, in a letter about the treatment of a wounded man, written to one Cesarini, in 1638. He called to mind the fact that Galileo had thirty-five years before shown him the air thermometer. A Venetian noble, Giovanni Francesco Sagredo, wrote to Galileo in 1613 that the instrument he had invented he had bettered. Sagredo divided the scale into one hundred divisions, and two years later seemed to have hermetically sealed the tube, and thus given us the modern instrument. Nevertheless, it was little employed in its improved form; and for years afterward physicians had made more or less use of Galileo's rude thermometer, of the errors of which Viviani, Galileo's pupil, was well aware. But concerning this invention, so carelessly made, had raged a battle of words scarcely yet at an end. Renou, in a very full book on thermometers, did not so much as name Galileo. Bacon, Cornelius Drebbel, and Sanctorius had all described the crude open thermometer. Fludd, in a curious, rare book (*Philosophia moysaica*, Gouda, 1638), spoke of it, as was then common, as the *speculum calendarium* (mirror of the seasons), and said he had got the figure and description from a manuscript more than fifty years old; in another of his works, however, he spoke of the manuscript as being at least seventy years old. Clearly no accurate deduction as to priority of discovery could be drawn from such conflicting statements. And, finally, Paolo Sarpi was alleged by his biographers to have invented the thermometer. No date was set; but Foscarini, in his work on *Venetian Literature*, observed that Fra Paolo in his notes spoke of the thermometer, and, according to his recollection, put the year of its invention at 1617.

Much of the early interest in the thermometer concerned its medical value.

That so eccentric a man as Fludd should have been seriously accepted as evidence was odd enough. He had had, as others had, a chance to know what went on in Padua. From the days of Elizabeth every man of fashion, and especially the English, traveled in Italy. Here, too, wandered all who studied or were fond of science, and it was to Padua—which Sanctorius called the Garden of Science—that Bacon came, and Drebbel, and this same Fludd, and the greater Harvey. The towns of Italy were the exchanges of Europe, both for commerce and for science. From them men took home what they saw or heard, describing them unquestioned (as did Bacon the air thermometer), thus leaving the future critic to settle the question of originality. The temper of the time was not that of our day. Men worked along patiently. There were no journals; the letter or the lecture were the only means of early publication. The genius who to-day invented a new forceps or a new pessary yearned for instant type, and defended his offspring with virulence. Harvey knew of his great discovery in 1616, and it got into print in 1628. His lecture notes showed that long before this date he was certain of the matter and clearly knew what he had done. Whence this seeming indifference? If, after his first lectures, some obscure Italian, hearing them, had gone home and stated in a book the facts of the circulation, we should have had a controversy more absurd than those which must have made the ghost of Harvey smile, if in that other world men smile at all.

The speaker had stepped aside to point out how it had been that as to the minor, and even greater, discoveries of those days so much trouble had arisen as to priority of claim. But it was now with the thermometer in medicine that we were concerned. Galileo, an astronomer, half a doctor of physic, had made it; and a prince, a very great person in his day, Duke Ferdinand II of Tuscany, had still further improved it and constructed divers forms for use in medicine. But this was as late as 1646. In 1876 some of the duke's pulse thermometers had been shown at the South Kensington Exhibition of Instruments of Precision.

In the mean while a new and interesting personage appeared on the stage, and with him and the later grand-ducal inventions and their applications ended for many a day the practical use of the thermometer in medicine. Santorio Santorini, born in Capo d'Istria, in April, 1561, was educated at Venice, and at the age of twenty-one took his degree of doctor of medicine at Padua. In his commentary on Galen there was a description of the air thermometer.

"We have here," he said in his commentary on Avicenna, "an instrument with which we may closely measure the degrees of the recession of the heat of the external parts, and with which we may learn accurately daily how much we vary from the normal; also the degree of heat of your patients." "The patient," he adds, "grasps the bulb or breathes upon it into a hood, or takes the bulb into his mouth, so that we can thus tell," he says, "if the patient be better or worse, so as not to be led astray in *cognitione, prædictione et curatione*." He gave no table of temperatures, no records. No real good came of it. The enthusiasm of the inventor kept it for a while before the public, as we had seen happen in our own day.

The thermometer lacked precision, and even when it had grown into this, want of knowledge of the cause of fevers, of their risks, and of how to lessen them, had caused the mass of physicians to neglect an instrument which as yet had for them little practical value. Here and there as time went on, in the physiologies, and soon in the books of practice, we found rare statements as to the heat of man.

And now, again, we had to thank an astronomer when, in 1701, Newton marked the blood temperature at 12° of his scale and used linseed oil as the fluid. A little later Daniel Fahrenheit altered the scale over and over, and at last set 96° as the blood heat, and here we first came upon the use of armpit temperatures. Boerhaave was said to have suggested to Fahrenheit the use of mercury in his thermometer, as to which there was some doubt; at all events, the records of the famous Paduan Academy show that long before this date the Italians had made use of mercury in their thermometers.

Almost a century of silence fell upon medical thermometry. It was broken by a few allusive aphorisms of Boerhaave, and by the doubting sentences of his famous pupil, Van Swieten, in 1745.

De Haen, who had seen Avenbrugger working beside him clinically for years and had learned of this genius no lesson as to percussion, more clearly apprehended the value of thermal records. We had rediscovered much that was his; but his methods and instrument had been clumsy, and here again an excellent example had proved valueless.

About 1740 there appeared in England one of those notable little essays which ought to have had an immense influence. A rude breach was then made in the bulwarks of ancient belief when George Martine followed Gometius Pereira in the view that heats were not specific, and in the proof that heat in man varied only in degree and not in kind. One must have read long and much to see what a profound hold this doctrine of specific heats had had on the mind of medicine. The speaker thought there were even yet lingering traces of its tenacity of influence. This book of Martine's was a wonder of able observations. He smiled at the thought of actual ebullitions or effervescences of the blood, as when Willis spoke of it as ready to burst into flame. A poet he thought might, by his profession, like Prior in his Alma, speak ot

Cor to burn, and Jecur to pierce,
Whichever best supplies the verse.

There was distinct modern good sense in his sarcastic rejection of "the stomach boiling our food by its great heat." Correcting all former observers, he had the temperature of the skin at 97–98°, over or under, he adds. Boerhaave, who made experiments on the effect of heat on animals, said that they died in an atmosphere at 146° owing to coagulation of the serum, for, he added, it was disposed to clot at 100° F., and did so not much above that. Around this view was fierce battle, Hales and Arbuthnot siding with the great physiological physician. But, said Martine: "I have seen fevers, most violent, where the blood was, from observation of the skin-heat, 5° or 6° above 100°, without approaching any such danger—*i. e.*, coagulation of the serum, or fatal effects." Was it a modern professor, coolly critical, who added: "Such heat, if neglected or wrong managed, may indeed dissipate the more thin fields or watery parts, and so, thickening the whole mass, have bad enough effects that way," etc.? and then he showed that a temperature of 156° was needed to clot serum.

Nor less interesting was it to find amid notable observations of temperatures these words: "In the ague I had lately, during the height of the paroxysm, the heat of the skin was 106° and that of my blood 107° or 108°," and, further, "what is very remarkable, in the beginning of the fit, when I was all shivering and under the greatest sense of cold, my skin was, however, 2° or 3° warmer than in a healthy and natural state." This all looked like the beginning of a practical use of the thermometer which then was, or very soon became, accurate enough. The germ of thermometric prognostics was in some of his sentences. But once again thermometry fell into disuse while medicine awaited more correct theories of heat. And here we would leave the matter. The physiologists and chemists were busy. There was absolute genius in the researches of James Currie as late as 1798. But the year 1840 and the systematic work of Andral were reached before that change began which in Wunderlich's classic had made us familiar with the true laws of temperature in disease.

And now the speaker would turn to a not less amazing story of the application of instrumental accuracy to the pulse. He could imagine the discomfort with which one looked forward to an essay on the pulse. He could promise that it should not be dull and that nowhere else was it told in full.

An astronomer had given us the first rude thermometer, and it seemed to have been another, Herman Kepler, who first, and certainly before 1600, counted the human pulse, or at least left a record of having done this memorable thing. The publications in which he mentioned the pulse dated from 1604 to 1618. Did it not seem incredible that of the numberless physicians who had sat by bedsides, thoughtful, with fingers laid upon that bounding artery, none should have had the idea of counting it? Kepler, a great but fanciful man, seemed to have believed the pulse to have some relation to the heavenly motions, and to have used the time of the pulse in connection with his arguments in favor of the Copernican system of astronomy. He said: "In a healthy man, robust and of full age, in one of melancholic complexion, or in a feeble man, generally for each second there is a pulsation of the artery, with no discrimination between systole and diastole; thus there should be in one minute sixty pulsations, but this slowness is rare, commonly 70 may be counted, and in the full-blooded and in women 80, four to each three seconds. Briefly, in one hour 4,000, more or less." The clock with which Kepler counted the pulse must have been such a "balance" clock as his master Tycho Brahe used.

The next epoch marked a pregnant hour in the history of science. When Galileo, but eighteen years of age, a student of medicine, counted the vibrations of a lamp swinging in the gloom of the Duomo of Pisa, he conceived them to be in equal time. Desiring to test the truth of his conclusion, he was said to have used his own pulse as a measure of the correctness of the pendulum. Forty years later, in describing the accuracy of his first clock-work, he said with enthusiasm: "My clock will not vary so much as the beat of a pulse." Said Viviani, his biographer: "The unerring regularity of the swing of a suspended lamp suggested to the young medical student the reversed idea of marking with his pendulum the rate and variation of the pulse. Such an instrument he constructed after a long series of experiments. Though imperfect, it was hailed with wonder and delight by the physicians of the day, and was soon taken into general use." Unclaimed by Galileo, it was attributed to Paolo Sarpi, and clearly enough was appropriated at a later date by that notable genius, Sanctorius, who also, like Galileo, had called it the pulsilogon. We had no drawing of Galileo's pulsilogon, but it must have been identical with the simpler form as figured in the works of Sanctorius. It was interesting to observe the tendency toward securing accuracy in medicine thus shown by Galileo at the outset of his medical career; Kepler's works were not published until later, and could not have been fully known to him. With his thermometer and the pulsilogon, and with this picture of his testing the accuracy of the swing of the lamp by his own pulse, this marvelous mind passed out of medical history. Where he would have left it had he remained in our ranks, who indeed could say? Of his loss to us, a poet had spoken:

Ah! when in Pisa's dome
He watched the lamp swing constant in its arc,
He gave to man another punctual slave,
And bade it time for us the throbbing pulse;
Not that grave Harvey whom Fabricius taught,
Not sad Servetus, nor that daring soul,
Our brave Vesalius, e'er had matched his power
To read the riddles of this mortal frame.
And then he left us. Would our strange machine
Had kept his toil, and cheated heaven's fair stars!

With the fame of Sanctorius as the discoverer of insensible perspiration, and with the inconceivable success of his aphorisms, we had nothing here to do. In his commentary on Avicenna, he quoted Galen as to "the need to know the amount of departure from the natural state, which is only to be reached by conjecture." But he, Sanctorius, had long been deliberating in what manner the amount of disease could be determined, and had invented four instruments. In his *Methodus vitandum errorum omnium qui in arte medica contingent*, he had also mentioned these. Then he described what must have been the form of Galileo's pulsilogon.

There were a scale and a leaden ball marked with a central white line. One swung the pendulum and noted the pulse with the fingers. If the pendulum was faster than the pulse, one lengthened the line; if slower, one shortened it until they coincided. "Then," he said, "we keep this degree in mind until the next day and compare it with a new record. And so we can study the pulse of health and disease." Also he defined the values and defended the accuracy of the pendulum. He used the beats of his pulsilogon as a measure of the time one must breathe upon his air thermometer. Other forms also were given. Thus we had to-day a pulse of so many inches (or degrees, if you please), and to-morrow it was longer or shorter, and the fever pulse was short, of course, but of results from all this we heard nothing in these huge tomes. The rest of this story was exasperating on account of its omissions. "These other instruments," he said, "record the frequency and slowness of the pulse, and also the time." "In this," he said, "are seven degrees of the difference of frequency and slowness observed by the index. Then each degree is divided into seven minutes (*minuta*), which are distinguished by the small index." "We have described the construction of the instrument," he added, "in the book on *New Instruments for Physicians*."

This book he referred to more than once, and in his *Inaugural Lecture* (a rare pamphlet) promised it shortly to his students, and with it also that other *De jucundissimis medicinis*. As to both one was curious, and especially as to this volume upon the most pleasant remedies. Perhaps these manuscripts were yet to be found among the treasures of some old Italian library. And if so, then only should we know whether these cotylæ had been rude watches, as seemed likely. He proposed with them to measure the systole and diastole of the heart. To do this, he said, "We must measure expiration, for this we know corresponds to the systole, as does inspiration to diastole."

The explanation of the cotyla was brief and now incomprehensible, but we learned that between expiration and inspiration "the artery pulsates twice or in many three times." Finally we were assured that what other physicians acquired by conjecture concerning the pulse, we were able to attain unerringly by the infallible skill of the pulsilogon. What a comfort he must have found it!

And here the great Paduan professor, with his thermometer and pulse pendulum, disappeared from history, dying in Venice in 1636, of a dysucturia (whatever that might be), in the parish of St. Fortunatus, a good saint as a stand-by for life or for death. He decreed that he should rest in the cloisters of Santa

Beata Servorum, in a mausoleum which he had made against the time of need. A strange proof of vanity was this care as to how the perishable part of man should be housed in death. And certainly this man had thought well of himself, but been also intensely loyal to our "Mistress Art," which he said, in a grandiose way, "is glorious and a helper of men both in peace and amid the din of arms. An art above all others. Folly is it to despise science in general, but to scoff at medicine is not only folly but wickedness—almost the sacrilege of bad hearts." And now instrumental study of the pulse failed us for many a day. When Sanctorius died, Sydenham was a boy of nine. There was not a pulse count among all those vigorous sketches which this great Englishman had drawn with a master's hand, and only once did Harvey speak of their number, which he said was from one thousand to four thousand in the half-hour.

In the year 1707 we came abruptly upon a notable book by Sir John Floyer, Knt. It was called the *Physician's Pulse Watch.* He dedicated the first volume to Queen Anne, "for without health," he says, "we should have no relish even for the extraordinary blessings of your reign."

He told us in his preface: "I have for many years tried pulses by the minute in common watches and pendulum clocks and then used the sea-minute glass," such as was employed to test the log.

At last he was more happy. One Daniel Quare, a Quaker, had in the last years of the seventeenth century put on watches what Floyer called a middle finger; as we say, a hand.

Floyer's pulse watch ran 60 seconds and could be had of Mr. Samuel Watson, in Long Acre. He tested this and a half-minute watch which had a cover by his sand-glass, and found them not quite correct; one must add, he thought, five beats.

And now followed pulses of age and youth, pregnancy, exercise, sleep. And we learned how diet, blisters, and the weather affected the pulse. Like a good every-day practitioner, he had his fling at science in the shape of a remark on the failure of Harvey's discovery to influence medical practice. Nevertheless, the book, on the whole, was full of good observations thoughtfully carried out. For the first time in medical literature we met with tabulated results; in fact, there was a modern air about his methods. Clearly he was a shrewd practitioner, a man of scientific accuracy, and knew the world, for he predicted—alas! too truly—that this new method would be sneered at and neglected. As late as 1768, Bordeu dismissed Floyer with something like contempt, and Fouquet qualified all pulse-enumeration as a mere useless curiosity, and sphygmometric instruments as idle toys. Falconer, as late in the century as 1796, said: "Floyer's methods were unused until now." And this was nearly true. In the eighteenth century one found now and then a pulse count, as when Morgagni described a pulse which beat twenty-two times in the sixtieth of an hour.

In fact, the minute was a long while in getting into the every-day life of men and doctors.

If, indeed, any man wished to nourish a taste for cynical criticism, let him study honestly the books of the eighteenth century on the pulse down to Heberden and Falconer, or even beyond them. It was observation gone minutely mad; a whole Lilliput of symptoms; an exasperating waste of human intelligence. The speaker knew of few more dreary deserts in medical literature, from the essay on the Chinese art of feeling the pulse, with which Floyer had loaded his otherwise valuable essay, to Marquet's method of learning to know the pulse by musical notes, an art in which he was not alone. And error had died hard. The doctrine of the specific pulses, a pulse for every malady, although rejected by De Haen, was in countless volumes, and had survived up to 1827, when Rucco dedicated his book on the pulse to Sir Henry Halford. Meanwhile whole volumes, like Bryce on Asthma, existed without a pulse or breath count; but further back, in a queer book on the heart by Bryan Robinson, there was the first clear statement of the proportional relation of the pulse to the respiration. Even those given to reading the authors of the end of the last and the first twenty years of the present century, might be surprised to learn that statements of the numbers of pulse and respiration were very rare in Rush, Cullen, and their contemporaries. Heberden and Falconer, who, perhaps, set too much value on pulse counts, made no impression on their contemporaries. In Corvisart on the heart we heard little or nothing in this direction, and in seven hundred pages of Laennec there was one pulse count and no numeration of the breathing. It seemed incredible; but not until the later French school had developed its force did we find in reports of cases the beginnings of those systematic numerations of the breath and pulse which were met with in modern cases.

If German science had been as much the fashion as German literature, the remarkable pulse studies of Nick, in 1826, would have sooner wrought a change; but it was not until a later day, and under the influence of the great Dublin school, that the familiar figure of the doctor, watch in hand, came to be commonplace.

It was well to illustrate thus fully the medical history of the watch as an instrument of precision. How small, but how essential a part of pulse study were the numerations it enabled us to make accurately! We could better lose this knowledge than the rest of what the pulse taught, and yet it was the only pulse sign we could put on paper with perfect precision, as Heberden had remarked a hundred years ago.

This tale of the growth of precision in medicine was not without its moral. In every modern century there had been men who sought to secure it. The true rate of advance of medicine was, however, not to be tested by the work of single men, but by the practical capacity of the mass. The truer test of national medical progress was what the country doctor was. How useful, how simple, it seemed to count the pulse and respiration, or to put a thermometer under the tongue, and yet it had taken in the one case a century, and in the other far more, before the mass of the profession had learned to profit by the wisdom of the few.

A certain sadness surrounded these stories of medical discovery. The speaker had resisted the temptation to tell more of Currie's notable essay, and of what little notice it had won until Hufeland saw and proclaimed its value. The fate of Avenbrugger, the inventor of percussion, and of his little book, so small, so terse, so wonderful, was yet more pitiful. He foresaw its future and his own, saying in his preface (1760): "Enim vero invidiæ, livoris, odii, obtrectationis, et ipsarum calumniarum socii, nunquam defuerunt viris illis, qui scientias et artes suis inventis aut illustrarunt aut perfecerunt."

Avenbrugger lived on to see his famous colleague, De Haen, write his fifteen volumes without a word on percussion. Van Swieten did it no greater justice. In his huge *History of Medicine*, Sprengel mildly mentions it as rather subtle. Yet were the contents of this booklet of twenty-two pages more practically valuable to man than all these men wrote or all the results of the vast and bloody campaigns during which it slept until in 1808, one year before the grave, contented German died at eighty-seven, Corvisart had translated it into French and proclaimed its undying value to a waiting world.

It seemed to the speaker, as he reflected on what he had said, that he had told a long story of neglected inventions or discoveries, ending sadly in repeated failures to make on their times any permanent impression of the real usefulness of the work accomplished. It was not only the poet who had to wait, and might never see the morning light of recognition break upon his genius.

In the speaker's mental wanderings among these numberless essays—these great folios—which were too often but splendid monuments inclosing dead and forgotten thought, he had seen how strong had been the resurrective force which now and then existed in some little essay long neglected, how from it, as from seed, had arisen in after years a fresh growth of vitalizing thought, and how this story repeated itself over and over, until, at last, what one knew and valued became the riches of all.

Assuredly in our day this process was more speedy than in the distant past. But be this true or not, there must be many among us who knew that, apart from large human acceptance and the material compensations of professional success, there was that in the mere pursuit of truth which mysteriously rewarded from day to day. This could no public or personal lack of recognition destroy, no indifference affect. He doubted not that such consciousness of duty done must have sustained many of the men whose failures to see their work result in larger use oppressed one who read the story of medical discovery. Over and over they had predicted their own failure to influence their fellows. The poet was grieved by the indifference of his contemporaries, but the physician seemed to be made philosophical by the steadying influence of every-day work, so that not Marcus Aurelius could have been more content than Avenbrugger while a half century passed by neglectful, and would not see the royal gift he offered to mankind. The speaker was glad to think he was happy, and to know that for all of us, as for him, this incessant every-day work was a talisman of content, a fact which none knew better than those to whom he now said, at last, his thanks and his farewell.

(*To be continued.*)

New Inventions, etc.

INSTRUMENTS FOR TREATMENT OF TRACHOMA.

By N. Darrell Harvey, M. D.,

RESIDENT SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

The instruments which I now introduce are some which I have devised for the more recent method of treating trachoma—viz., by scarification of the conjunctival surfaces of the lids and brushing with an antiseptic solution. This operation, originating in Germany and practiced to a considerable degree in Europe, is as yet comparatively unknown to American ophthalmologists, and so far I have seen no instruments which are suitably adapted to its most advantageous performance. The use of the ordinary scalpel and artery forceps, practiced by many men, has many objections, so that I have been tempted to suggest these instruments, inasmuch as they seem to me to overcome many of the difficulties heretofore encountered.

They are two in number, and consist of forceps for everting the lid and a scarifier. The kind of forceps needed was suggested by the ordinary artery clamp modified in some degree after a form of needle-holder. This instrument is seen in Fig. 1, and consists of two blades, which work upon the ordinary forceps joint. The jaws are long enough to engage the entire length of the lid, and so narrow that they will include little more than the ciliary margin of the conjunctival surface, thus obviating the necessity of having to remove the forceps before the completion of the scarifying process. One of the jaws, intended for the lower surface of the lid, is set with a row of fine teeth long enough to penetrate the conjunctiva and obtain sufficient hold to prevent slipping in the act of eversion. The other jaw is perfectly smooth. A spring for separating the blades, and a swinging catch, such as are used in forms of needle-holders, are attached. The handles are rounded, and permit of easy revolution within the grasp in everting the lid.

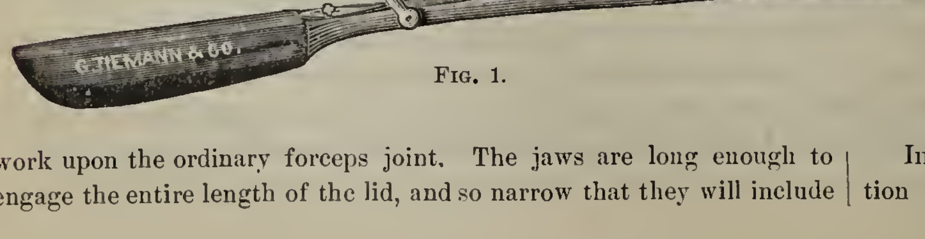

Fig. 1.

The other instrument is the scarifier (Fig. 2). Its form was suggested by the desire to obtain a knife by means of which the depth of the incisions could be delicately varied and the distance between them uniformly maintained and sufficiently minimized. This can not be so perfectly done with the ordinary scalpel, but I think that the instruments under consideration will be found to satisfy these requirements. The knife consists of four blades, about a quarter of an inch in length, placed parallel to one another and separated by about a fiftieth of an inch. Each blade is brought to a point on its cutting edge, and so inserted into a handle of platinum that it can be removed, cleaned, and sharpened without difficulty.

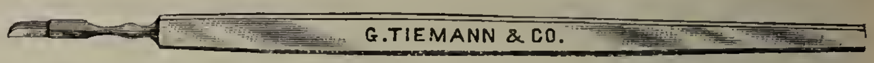

Fig. 2.

By means of these instruments I think it will be found that the lid can be well everted so as to expose the retrotarsal fold, and easily manipulated, and that its conjunctival surfaces can be more uniformly, thoroughly, and expeditiously scarified than by the instruments heretofore in use. The makers of these instruments are Messrs. George Tieman & Co., to whom I am greatly indebted for the delicacy and accuracy of this work, as also to Dr. D. W. Hunter for numerous valuable suggestions.

Miscellany.

The late Professor Parkes, of Chicago.—The *American Journal of Obstetrics and Diseases of Women and Children* for September publishes the following memorial sketch, by James H. Etheridge, of Chicago, of the late Charles Theodore Parkes, M. D.: The appalling mortality in Chicago in the winter of 1890–'91 appeared to reach its climax in the demise of the subject of this memorial. A terror of death had seized upon the masses; we saw its relentless strides in our midst, trampling to earth nearly one thousand hapless victims each week. A subdued, awed mental condition existed in our city whose equal had not existed since the memorable autumn of 1866. Each morning the death columns of the daily press were scanned with an ill-concealed anxiety. In the death of several members of the medical profession, of advanced years, we all admitted the appropriate tribute to the natural failure of the powers of life; but in the untimely departure of our esteemed fellow the profoundest impression prevailed, which was eagerly voiced by his friends, and by strangers who had even never seen him.

Dr. Parkes was born of English parents in Troy, N. Y., in 1842. After living there a few years he resided in Pennsylvania for a brief time, when he removed to the West with his parents. His early education was derived from the public schools of the day. Early in the civil war he enlisted as a private in the Western army, and became a lieutenant before the declaration of peace. Upon leaving the army he began the study of medicine in Chicago, and was graduated from the Rush Medical College in February, 1868. Immediately upon receiving his degree in medicine he was appointed demonstrator and subsequently professor of anatomy in that institution, and held the position for a period of twenty consecutive years.

In these years he taught this subject with an enthusiasm and devotion unsurpassed in this or any other country. Thousands of physicians attest by their sound practice of surgery the thoroughness of the teaching and discipline, in their early student days, of this great master.

During that time he was an attending surgeon of St. Joseph's Hospital for about sixteen years. He was also an attending surgeon to the Presbyterian Hospital from its opening. Upon the demise of Professor Moses Gunn, in 1887, he was appointed the professor of the principles and practice of surgery and clinical surgery in Rush Medical College, and held that position till his death. He conducted surgical clinics each week throughout the year, which for variety and extent were pronounced, by physicians competent to judge of such matters, without a parallel in the annals of medical college teaching.

Everything, from surgical advice to the gravest capital surgical operations, was presented in his clinics. The marvelous revelations of the possibilities of modern antisepsis conspired to bring success to such work before audiences. He was the pioneer of laparotomists before large classes of medical students. His memorable report of thirty abdominal sections in the amphitheatre of Rush Medical College will be recalled by the fellows of this society. It was no uncommon thing for him to open a clinic with a laparotomy and subsequently perform four to eight minor operations, besides disposing of as many more dispensary patients in one afternoon. I once saw him perform a laparotomy, a thigh amputation, and a knee resection, with four minor operations, in one clinic. There seemed to be no limit to his capacity for work at such times. His giant proportions, his commanding presence, his rapid, masterful work, his wonderful mental acumen, made him a veritable son of Anak among teachers of surgery.

During the summer and fall of 1883 he began a series of experiments in intestinal surgery which revolutionized existing ideas in that branch of surgical achievements. Up to that time surgery treated gunshot wounds of the abdomen expectantly. His extended experience in laparotomies led him to inquire: "Why can not surgery at once and fully avail to place such injuries in the category of the operative art?" His first publication of experiments on dogs was based on work performed on thirty-nine animals. The dog, anæsthetized first, was shot through the abdomen; a laparotomy followed; the perforations of the intestines were found and closed under thorough antisepsis. The number of recoveries in his animals astounded the medical profession, and led them to further experimentation in all parts of the world. He made his first report on his new work at the meeting of the American Medical Association in Washingtont in 1884. He exhibited there specimens of intestines in successful cases, preserved from dogs slain after their recovery. He took with him to that meeting a small living dog, from which he removed five feet of intestine that had been perforated by bullet holes so numerous that resection was necessary. His later and more complete reports of this work have been translated and published in the medical literature of all countries of the globe. His name as a pioneer in the surgical treatment of wounds of the intestines will be handed down through all future time. He laid the foundation for the rational treatment of penetrating gunshot wounds of the abdomen.

Truthfully might he have exclaimed in the words of the Roman, "*Monumentum æris ædificavi.*" It can be claimed without refutation that his experimental and clinical contributions in this department of surgery constitute the monument of indestructible bronze which all nations will concede to his name. It was his great lifework.

His knowledge of human anatomy was thorough and exhaustive. During the first twenty years of his professional life, without interruption, he taught this department of the curriculum. He was a most accomplished dissector. His quick appreciation and enjoyment of the anomalies of human anatomy indicated his profound intimacy with the normal construction of our bodies. In the early years of his teaching his mind was continually occupied with the details of practical anatomy. He once made the remark to me, when preparing in an emergency a dissection of the cervical triangles with astonishing rapidity for class demonstration: "Isn't the infatuation of this kind of work prodigious? I believe that I could construct a human being with a scalpel." His work begat in him a concentration and directness of thought and terseness of speech which were shown to their most conspicuous advantage in professional consultations with other physicians. He rarely, on such occasions, delineated his observations, laid down postulates, reasoning therefrom and drawing conclusions. His habit was to say: "Doctor, you have a case of thus-and-so here, and I recommend this course of treatment," stating his recommendations.

Whenever he was baffled in making a diagnosis—a comparatively rare occurrence—he had the courage to acknowledge he did not know what the case was. His mind at such times was always on the alert, incisive, aggressive. The smallest circumstance often served to give him the key to the situation. I recall his investigation in a consultation in a case of alleged obscure spinal disease in a man who had suffered much at the hands of many doctors and had been helpless in bed for many weeks, in which he was at sea. He was about to close his examination fruitlessly when he saw a young child of the patient displaying characteristic notched teeth. He at once cleared the room of members of the family, and drew from the patient reluctantly an almost forgotten specific history antedating his acquaintance with his wife many years. Appropriate treatment resulted in a brilliant recovery of the patient.

As in the study of anatomy one must fix the landmarks, so he had always in his mind the salient objective symptoms of all diseases. He seemed to possess a perennial freshness of such knowledge. His enormous experience had familiarized him with nearly every variety of human symptomatology. His perceptive faculty was most acutely cultivated, so that when he investigated new cases he was oftentimes in possession of his diagnosis long before associated physicians had fairly begun investigating. He seemed to possess that rare power, so seldom seen in members of the profession, of making what one might denominate an intuitive diagnosis.

His relations to the members of the medical profession were always of the most exalted standard. His observance of the rulings of our code of ethics was the strictest. In professional consultations, the attending physician was always sure that his position was strengthened by the wise counsel accorded and by the punctilious observance of the strictest caution against derogatory observations and questionings. He was abhorrent of the slightest unfairness between physicians. Many a young physician has cause to remember his kindly yet positive remonstrances against questionable professional conduct. His contempt for a certain class of attorneys who always seem to be possessed of an insane desire to encourage malpractice suits was measureless. Times almost without number he had occasion to strangle suits of this character in their incipiency by a positive expression of opinion in private.

I recall an instance of an attorney calling on him in his office with a young man who had sustained a Colles's fracture in which better treatment would seem to have produced a much better result than was attained, and asking his opinion of the treatment. A vigorous indorsement of the management of the case was expressed. The next day, in his anatomical lecture, which happened to be on the bones of the forearm, he saw that attorney occupying a seat in the upper row of the amphitheatre. Pretending not to see the unwelcome visitor, he dilated somewhat extensively on the difficulties attendant upon securing good results in Colles's fracture, and that lawyer had an opinion of malpractice-suit encouragers in the legal profession that he will never forget. Although he possessed no exalted opinion of homœopathic and eclectic physicians, I have known of repeated instances where he averted malpractice suits against them.

Prior to his last illness, for months, absorbed in writing a work on abdominal surgery, working oftentimes till one and two o'clock in the morning, he robbed himself of the rest necessary to the life of a busy man. His enormous experience in laparotomies was the groundwork of what would inevitably have been a most interesting and valuable book on this new branch of surgery.

He was stricken down in all of the physical power and glory of a grand physique, with but little more than half a lifetime accomplished. He was just upon the threshold of a well-earned, full professional harvest, where his eyes had been permitted to view the promise of a professional future of unexcelled usefulness and prosperity.

His grand work as a surgeon and teacher came to a sudden end just prior to the commencement exercises of the Rush Medical College, leaving the students and his colleagues of the faculty in profound grief over the sudden ending of a brilliant career.

Quadrant Electrometers.—In the *Proceedings of the Royal Society*, No. 302, dated August 28, 1891, we find the following abstract of an article by W. E. Ayrton, F. R. S., J. Perry, F. R. S., and W. E. Sumpner, D. Sc., received by the society on May 19, 1891:

In 1886 it was noticed, on continuously charging up the needle of Sir William Thomson's bifilar suspension quadrant electrometer No. 5, made by Messrs. White, of Glasgow, and in use at the laboratories at the Central Institution, that the deflection of the needle, when the same P. D. (potential difference) was maintained between the quadrants, instead of steadily increasing, first increased and then diminished; so that, both for a large charge on the needle as well as for a small, the sensibility of the instrument was small. A similar effect had been described by Dr. J. Hopkinson, in the *Proceedings of the Physical Society*, vol. vii, Part 1, for the previous year, and the explanation he gives of this curious result is, that if the aluminium needle be below the center of the quadrants, the downward attraction of the needle which varies with the square of the needle's charge increases the pull on the bifilar suspension, and so for high charges more than compensates for the increased deflecting couple due to electrical action. On raising, however, the needle of our electrometer much above the center of the quadrants, the anomalous variation of sensibility of the instrument with increase of charge in the needle did not disappear, and even when the needle was raised so that it was very close to the top of the quadrants, and when, if Dr. Hopkinson's explanation were correct, the sensibility (or deflection corresponding with a given P. D. between the quadrants) ought to have been very great for a large charge on the needle, it was, on the contrary, found to be small.

The needle was carefully weighed, with the platinum wire attached and the weight dipping into the acid, and a calculation was made as to the magnitude of the effect that should arise from the change of the pull of the fibers due to any upward or downward attraction of the needle by the quadrants. This calculation showed that for a P. D. of 3,000 volts between the needle and the quadrants, the amount of such attraction was quite unable to account for the observed diminution of sensibility with large charges in the needle. Dr. Hopkinson says in his paper: "Increased tension of the fibers from electrical attraction does not therefore account for the whole of the facts, although it does play the principal part." The experiments that we made at the end of 1886 and beginning of 1887, confirmed by the calculation above referred to, proved that, at any rate in our specimen of the quadrant electrometer, the principal part of the anomalous action was not caused by an increased tension of the fibers, and that therefore some other cause must be looked for to explain the observed results.

An investigation, which turned out to be both lengthy and very laborious, was therefore undertaken to ascertain the cause of this curious behavior of our White electrometer. At first we thought that it might be due to some capillary action between the platinum weight and the sulphuric acid, which varied with the potential of the acid, but, experiment having shown that this was not the explanation, we decided to make an exhaustive series of experiments for determining the laws connecting the variation of sensibility of the White quadrant electrometer with the potential of the needle, the distance between the silk fibers, and the distance between the quadrants. The investigation has occupied us on and off for some years, and in carrying it out the quadrant electrometer has had to be taken to pieces many times.

To facilitate the frequent removal of the interior of the Leyden jar, rendered necessary for carrying out the various experiments, an improvement was introduced into the method of clamping the needle, and to diminish leakage, an improvement was introduced into the replenisher, both of which are described in detail in the paper.

The P. D. between the needle and the outside case of the electrometer was measured by means of one of Sir William Thomson's absolute electrometers, made especially sensitive by thinning the coach springs supporting the attracted aluminium disc.

In July, 1888, several large P. Ds. were measured by means of this absolute electrometer (using the constants that we had determined for this instrument), and by means of one of Sir William Thomson's commercial "electrostatic voltmeters," reading to 20,000 volts, kindly lent us by Messrs. Elliott Brothers. The result of these comparisons led first to a correction in the constants that had been previously sent out with the electrostatic voltmeters from Glasgow, and, secondly, to a new determination of the value of "*v*." For Sir William Thomson had calibrated these voltmeters electromagnetically on the basis of the value of the electrochemical equivalent of silver, as determined by Lord Rayleigh and Mrs. Sidgwick, while we had checked the calibration of the electrostatic voltmeter by comparing this instrument with the absolute electrometer. The value of "*v*" thus obtained was 298,000,000 metres per second.

From the experiments made on varying the distance between the fibers supporting the needle of the quadrant electrometer, it was found that, when the control due to the fibers was large, the sensibility of the quadrant electrometer increased more rapidly than the potential of the needle, whereas, when the control due to the fibers was small, the sensibility increased with the potential of the needle up to a certain point, and then diminished again as the potential of the needle was still further increased.

From experiments made by varying the distance between the quadrants, we found that when the distance between the quadrants was small, the sensibility first increased as the potential of the needle was raised, then it diminished, and finally it increased again for a still further increase of the potential of the needle. The curve, therefore, connecting sensibility with potential of the needle was invariably of an ∾ shape for a small distance between the quadrants.

As the distance between the quadrants was increased, the sensibility curve flattened, becoming practically straight when the distance separating the quadrants was 3·9 mm. For a greater distance than this between the quadrants, the sensibility increased more rapidly than the potential of the needle.

The various curves accompanying the paper show that this quadrant electrometer may be adjusted so that the variation of sensibility with the potential of the needle may be made to follow one or other of *three distinct laws*. If the quadrants be near together, there are certain limits between which the potential of the needle may vary without producing more than a small change in the deflection corresponding with a fixed P. D. between the quadrants; for example, when the quadrants were about 2½ mm. apart, and the fibers near together at the top, the deflection produced by a P. D. of 1·45 volts between the quadrants only varied about 11 per cent. when the potential of the needle varied from 896 to 3,586 volts—that is, by 2,690 volts. When the fibers were far apart at the top, it was when the quadrants were about 1 mm. apart, as seen in sheet III, that a similar flatness was obtained in the curve connecting deflection with potential of the needle. In this case the deflection of the needle was practically quite constant when its potential varied between 2,152 and 3,227 volts, and even when the potential of the needle was increased from 1,434 to 3,407 volts—that is, by nearly 2,000 volts—the deflection did not increase by as much as 9 per cent. This arrangement of the quadrants gives but a comparatively small sensibility, but, where great sensibility is not required, it would be a convenient one to employ, as leakage of the Leyden jar, or loss of potential of the needle due to the rapid absorption that occurs when the jar is first charged, would only slightly affect the deflection for a fixed P. D. between the quadrants.

When the quadrants were at about 3·9 mm. apart, the deflection for a given P. D. between the quadrants was almost directly proportional to the potential of the needle. This then would be the arrangement to employ when the electrometer is used with alternating P. Ds. And lastly, when the quadrants were 4 mm. or more apart, the deflection increased much more rapidly than the potential of the needle, so that maximum sensibility, bordering on instability, is obtained with this arrangement of the quadrants.

After carrying out a large number of experiments, the cause of the irregularity in the action of the Thomson quadrant electrometer, as made by Messrs. White, began to dawn on us. The wire supporting the aluminium needle, as well as the wire which connects the needle with the sulphuric acid in the Leyden jar, is inclosed in a metallic guard tube to screen the wire from external action. But, in order that the needle may project outside the guard tube, openings are made in its two sides. Hence the moment the needle is deflected from its zero position, each half of the needle becomes unsymmetrically placed relatively to the two metallic pieces which join the upper and lower half of the guard tube. Therefore, in spite of the needle and the guard tube being always maintained at the same potential, there is a repulsion between the charges on the two connecting pieces of the guard tube and the charges on the two halves of the needle. And this repulsion has not only the defect of seriously diminishing the sensibility of the quadrant electrometer as made by Messrs. White, but causes the variation of sensibility of the electrometer with variation of the P. D. between the needle and the outer coating of the Leyden jar to follow a far more complicated law than that expressed by the conventional formula just given.

To test this theory, that the peculiarities in the law of the quadrant electrometer are due to the electric action of the guard tube on the needle in consequence of the special shape of the former, we intensified and varied the want of symmetry of the guard tube by attaching a piece of thin aluminium foil to it above and below the needle, and experiments made on the law connecting the sensibility of the electrometer with the potential of the needle showed that the law could be much altered in character by a slight shift in the position of the piece of aluminium foil.

The paper then goes on to describe experiments connecting the motion of the electrical zero with the potential of the needle, and with the position of the adjustable quadrant.

Guided by the results of a long course of experiments on the White electrometer, we were led, with the assistance of Mr. Mather, to construct an improved unifilar quadrant electrometer which is fully described and illustrated in the paper. This improved electrometer differs in numerous particulars from that made by Messrs. White. The bifilar suspension is abandoned for reasons given in the paper, and there is employed instead a new form of adjustable magnetic control, so arranged that the needle is practically unaffected by outside magnetic disturbance. All the working parts are supported from the base, so that on removing the glass shade, which serves as the Leyden jar, all the parts can be got at and adjusted *in position*; all the insulated stems are made of glass, and are under cover, protected from dust and damp; pressure contact between the electrodes and the quadrants is replaced by spirals of fine wire screwed to the quadrants and to the electrodes; the needle, quadrants, and guard tube are so shaped that, in whatever symmetrical position the quadrants be placed, the deflection produced by a given P. D. between the quadrants is directly proportional to the potential of the needle, and, further, this improved electrometer is at least ten times as sensitive as our specimen of the White pattern when the instruments are adjusted to be in equally trustworthy condition as regards definiteness of the zero and of the deflected position of the spot of light.

Next follows an account of some experiments made by us on a White electrometer, the needle of which Mr. Boys had suspended with a single quartz fiber. Although this instrument was in excellent condition as regards definiteness, etc., the raising of the potential of the needle to only 400 volts was sufficient to show that the sensibility was not proportional to the needle's potential.

Lastly, for the purpose of obtaining conclusive evidence as to whether our idea was correct about the connecting pieces of the guard tube in the White electrometer causing the sensibility of this instrument to be in many cases actually less when the needle had a high potential than when it had a low, we had constructed a little collar with two legs. This collar could be clamped to the upper portion of the guard tube of the improved electrometer with the legs projecting down into the quadrants on each side of the needle, and experiments showed that, when this collar was attached to the guard tube, the improved electrometer, although not a bifilar instrument, became as bad as the White pattern. For, while before the attachment of this collar the sensibility increased proportionately to the potential of the needle, after the collar was attached the sensibility first increased and then diminished again as the potential of the needle increased, and with the same adjustment of the quadrants, controlling magnets, etc., and with the needle charged to a potential of 1,300 volts, the mere attachment of this little collar reduced the sensibility to one quarter.

The paper concludes with a sketch of the mathematical investigation that we carried out, and it is explained that, by taking into account the electrical action of the connecting pieces of the guard tube of the White electrometer, the diminution in this action as the quadrants are pulled out, the alteration produced by the tilting of the needle at high potentials on the magnitude of this electrical action as well as on the rate of variation, per radian deflection of the needle, of the coefficient of induction between the insulated pair of quadrants and the needle, an expression was obtained for the deflection of the needle in the terms of its potential and the P. D. between the quadrants. And this expression, although containing only three constants, fitted with considerable accuracy all the curves given in the several sheets accompanying the paper.

The results of the investigation, briefly summed up, are as follows:

1. The quadrant electrometer as made by Messrs. White, although it may be carefully adjusted for symmetry, does not usually even approximately obey the recognized law for a quadrant electrometer when the potential of the needle is altered.

2. The peculiarities in the behavior of the White electrometer are due mainly to the electrical action between the guard tube and the needle, and to the slight tilting of the needle that occurs at high potentials.

3. By special adjustments of the quadrants of the White electrometer the sensibility can be made to be either nearly independent of the potential of the needle, or to be directly proportional to the potential, or to increase more rapidly than the potential of the needle.

4. By altering the construction of the instrument as described, the conventional law for the quadrant electrometer is obtained without any special adjustment of the quadrants beyond that for symmetry, and the instrument is rendered many times as sensitive as the specimen we possess of the White pattern.

On the Value of Antimony in Various Inflammatory Affections of the Skin.—The *British Journal of Dermatology* for September, 1891, contains the following article, by W. Allan Jamieson, M. D., F. R. C. P., of Edinburgh:

While arsenic enjoys to an unmerited degree the confidence of the bulk of the profession generally as a remedy in cutaneous disorders, and is prescribed almost indiscriminately in all forms, antimony, which offers so many points of analogy with its more popular rival in therapeutic action, has been comparatively neglected. It is true that efforts have been made from time to time by acute observers to bring it into more extensive use in suitable cases. Thus Cheadle and Malcolm Morris have emphasized its value in eczema, Jonathan Hutchinson in lichen planus. Yet it is doubtful if their statements have aroused the attention they deserve, and therefore the relation of the following instances in which benefit of a marked character resulted from the employment of antimony may possibly not be devoid of interest.

1. *General Exfoliative Dermatitis.*—T. R., a well-built laborer, aged twenty-four, who, though he suffered from severe illness—the nature of which could not be ascertained—when seven years old, has since then had excellent health. In the commencement of the month of August, 1890, he noticed some scaly patches on the knees and elbows, which itched so as to cause him to scratch to relieve the sensation. Though limited at first to the situations named, in course of time they spread, and fresh spots appeared on the trunk and limbs. A doctor whom he consulted diagnosticated psoriasis and prescribed a chrysarobin ointment; this he had used three times a day for three days when he presented himself at the Royal Infirmary on the 12th of October, 1890. The appearances were at that time those of ordinary psoriasis *plus* a certain degree of erythema apparently due to the ointment. The erythema was pretty extensive, there was now considerable itchiness, and Dr. Wyllie admitted him into Ward 31, where he allowed me to direct the treatment.

The redness rapidly spread, and by the 28th of October had become universal. He complained that the integument felt too tight for him, while he was constantly chilly. On the scalp there was a thick coating of dry heaped-up scales, so that the condition there resembled a dry eczema or intense seborrhœa. The ears were red and peeling, while from the whole surface there was a continued exfoliation of thin, dirty yellowish-white lamellæ, which could be separated without in any apparent way injuring the epidermis. Between the scapulæ these had accumulated in masses presenting a light-yellow color. On the forearms the skin looked tense and drawn. The epidermis of the palms was dry and hard. The face, though red, was smooth, the eyelids a little everted. The nails, somewhat more curved than usual, were otherwise normal. The tongue was clean, the digestive functions performed naturally. The urine exhibited nothing abnormal. Starch baths, instead of relieving him, gave rise to pain, and no benefit resulted from a lotion of calamine and boric acid, nor from one of prepared chalk and olive oil, oxide of zinc, water, and salicylic acid. At this stage he was seen by Mr. Jonathan Hutchinson during his visit to Edinburgh, and allusion is made to his case at page 308 of his *Archives of Surgery*, vol. ii. Mr. Hutchinson suggested that he should have an eighth of a grain of tartrate of antimony three times a day, and to this was conjoined inunction with purified whale oil. By the time this had been taken for five days, the skin had become everywhere smoother, and in some situations, as in the bend of the elbow, over the tip of the shoulder, and slightly elsewhere, areas of normal skin were beginning to appear, on which the exfoliation had ceased. The integument too was less tense; it had never been, so to speak, infiltrated. The treatment was steadily persevered in till he was discharged well in the end of November, though even then there was some degree of scurfiness of the scalp. On other parts of the body the skin was soft, pliant, and in all respects natural in appearance.

2. *Acute Erythematous and Moist Eczema.*—E. V., aged seventy-nine, a healthy woman for her age, was sent into the City Hospital as a case of erysipelas on the 28th of May, 1891. She thought she had caught cold on the 22d of May, but felt very little wrong till the morning of the 24th, when she began to experience a sharp and painful itchiness all over the left side of the face. By the advice of a friend she bathed it with warm water, which temporarily relieved it. The itching and swelling of the face steadily increased so as to close both eyes. When admitted, the whole of the patient's face was uniformly swollen, very tense to the touch, bright red in color, but quite dry. The condition was entirely limited to the face, including the forehead, though it extended somewhat down the sides of the neck, the glands at the angles of the jaws being slightly enlarged. The margin of the redness was a double one, the inner portion presenting a brightly colored tint, the outer fading gradually into the natural hue of the skin. Burning, itching, and painful sensations were complained of, but there was no elevation of temperature. On the 3d of June there was a good deal of crusting due to the drying up of moist exudation round the mouth and on the chin. Treatment was commenced on the 3d and consisted of the administration of one eighth of a grain of tartarized antimony thrice a day, and the local application of a dusting powder of salicylic acid, oleate of zinc, and talc. This relieved the itching to some extent, but, as the oozing and crusting tended to spread, cold starch poultices containing boric acid were applied for twenty-four hours, till the crusts had thus been caused to separate, when a calamine lotion with a drachm of boric acid in six ounces was substituted for the powder and found grateful and soothing. There was now some threatening of eczema on the trunk and limbs, in the form of numerous red, irritable, slightly scaly and rough patches. On the 6th the swelling of the face had markedly diminished, the itching had lessened, the patches on the body had faded, while she had slept well for two nights. Progress was now uninterrupted, and on the 12th it is noted that, with the exception of occasional and not severe itching, there was no uncomfortable sensation present, while all the local phenomena had vanished, and she was discharged well a few days later.

3. *Acute Eczema in a Female of Gouty Family.*—Mrs. E., aged fifty lives in a healthy part of the country. Her family are gouty, though, she has not herself suffered. She had an attack of influenza in April, and since then has been more or less annoyed with eczema, chiefly affecting the face and hands. After treatment of a varied kind she went to Bath, and while there she lost the eczema, but no sooner had she returned home than it recurred more violently than ever. She consulted me in the middle of June, 1891. She then presented the aspect of a person in fair health, but the conjunctivæ were slightly sallow, the tongue was coated, and the bowels were said to be costive. Her face was swollen, the skin infiltrated, red, dry, hot, and itchy. The palms too were a little scaly. She was ordered one sixteenth of a grain of tartarized antimony thrice a day, to take a sufficient dose of the well-known mixture of sulphate of magnesia, sulphuric acid, and sulphate of iron as was found necessary every morning to move the bowels easily, and to apply to the face a calamine lotion containing a little carbolic and boric acids twice a day. The antimony was continued only a week, as the face had improved so much that the time for its useful employment seemed to have passed. By the end of June the face was only a trifle rougher than natural, no itchiness, the appetite fair, and the bowels acting satisfactorily. A lotion containing a drachm of tincture of benzoin, a drachm and a half of glycerin, in six ounces of distilled water, was directed to be applied to the face occasionally; and, as the eyes still looked rather yellow, teaspoonful doses of Oppenheimer's liq. euonymin and pepsin were directed to be taken after meals for a week or ten days.

4. *Dermatitis Bullosa.*—J. C., aged fifty-three, a warehouse porter, who in general enjoys excellent health, was admitted into the City Hospital as a case of erysipelas, under the certificate of a medical man who had attended him, on the 16th of June, 1891. He stated that his attention was in the first place drawn to a red, exuding patch of inflamed skin, in front of and below the lobule of the left ear, about the size of a florin, by a sensation of "pins and needles" and of itching. This was treated, by advice, with boric starch poultices, which, though they relieved the itching, swelling and redness continued to extend. He felt much depressed and his appetite failed. When admitted, the redness and inflammation of the skin had spread over the neck, most of the chest, before and behind, and down the arms as far as the insertion of the deltoid, while it had also encroached to some degree on the face. The margin was not sharply defined, as in erysipelas, there was intense burning and itching, but, as distinguishing it from eczema, there were many large bullæ scattered here and there over the surface. The skin was glazed and much infiltrated, the color a deep scarlet-red. His temperature was 101°. He was put to bed, as he looked and felt very ill, and boric starch poultices continuously applied. On the morning of the 17th the temperature was 100·2°, in the evening 100°. On the 18th the temperature became and remained normal, but the appearance of the skin remained the same, although it was less irritable. One eighth of a grain of tartarized antimony was now prescribed, to be taken every four hours. On the 20th the swelling, redness, and itching had all greatly diminished, and next day an ointment, consisting of half an ounce each of prepared chalk and lard with two drachms of ichthyol, was applied several times a day to the whole affected part, which was also enveloped in cotton-wool. The antimony was discontinued on the 23d. On the 26th he was entirely free from his complaint, the sole vestiges remaining being a few red stains where the bullæ had originally been. He felt, too, comparatively well.

5. *Lichen Planus.*—S. A., aged twenty-five, is occupied in official work of a healthy character, and one which involves no undue worry or anxiety. He first noticed a patch of lichen on the inner side of the left leg near the knee, in December, 1890. For this arsenic was prescribed, and it rapidly became worse and spread. It seemed to improve under mercury as hyd. c. cretâ, or as hyd. perchlor. c. cinchonâ. But this amelioration was apparently temporary, for arsenic was again prescribed, with the effect of marked increase in the amount of eruption, and aggravation of the subjective symptoms. He consulted me on the 29th of June, 1891. He complained that of late he could not sleep from the severe itching, while, since he had taken the arsenic for the second time, his face and feet had swelled, and the latter had become tender and sore when he walked. He looked a healthy man, the tongue was clean, the digestive functions in order, and no disturbance of the general system was discoverable. The skin of the trunk, abdomen, and back was stained a deep brown, and in the most highly pigmented parts were set patches and papules of lichen planus, colored a dull crimson red. In parts the papules were almost purplish in hue, and in all respects corresponded to typical lichen planus. The eruption was very symmetrical. It occurred in large areas on the sacrum, in the groin on both sides, on the abdomen and chest; it was more in discrete papules, though also in patches, on the arms, the thighs, and legs. There was no eruption on the face, hands, or feet, nor on the tongue. He was quite certain that arsenic had made him worse, and told me he must have some other medicine, as he would not take it again. I ordered

him baths of starch and potassa sulphurata at night, and one eighth of a grain of tartrate of antimony every four hours for a week, then three times a day. He came back, exactly a month later, on the 29th July, looking the picture of health. He told me that he had not continued the baths long, as the itching soon ceased entirely, but he had taken the antimony for a week, five times a day, and for three weeks four times. He had experienced no ill effects, on the contrary, he. felt extremely well. On stripping him the skin was found still to be more pigmented than it ought to be, but the situations where the patches of lichen had been were now only barely recognizable as very delicate lilac stains. In some places the shape of the papules could be with some difficulty made out, but the disease was practically gone. He was advised, however, to continue the antimony in gradually diminishing doses for a week or two longer.

This case resembles very closely the one related by Mr. Hutchinson in his *Archives of Surgery*, vol. ii, page 88. In both, the eruption was aggravated by arsenic, and disappeared when antimony was substituted. In Mr. Hutchinson's case, opium was given along with the antimony, but in both it would appear that the latter drug was the curative agent, though Mr. Hutchinson, from the experience of one case, was unwilling to assert this as a fact.

When one endeavors to speculate on the action of antimony, one is led to compare it with pilocarpine; both act on the sweat glands as stimulants, both improve the nutrition of the skin. If the story be true that Basil Valentine observed that when the sulphide was given to pigs it first purged and then fattened them, while on attempting to feed his brother monks in the same manner he killed them all, the error was probably one of dosage. Valentine would be too much alarmed at the result of his first experiment to proceed further and try smaller quantities. If Unna is correct in his view that there is a correlation between the functional activity of the sudoriparous glands and the deposition of subcutaneous fat, one can understand how the diaphoretic property of antimony could promote the augmentation of adipose tissue and simultaneously improve the pliancy and unctuousness of the integument. It would at the same time reduce congestion, remove infiltration, and lessen the tendency to premature epidermic exfoliation. It is true that in the instances cited antimony was not exclusively employed, or solely relied on, but it was the only common feature in the treatment of all alike, and there can be little question that its exhibition contributed materially to the rapidity of the cure.

The Magnification of Local Disease.—The following is from an address entitled The Child is Father to the Man, by James F. Goodhart, M. D., F. R. C. P., of Guy's Hospital, London, delivered at the opening of the Section in Diseases of Children at the recent meeting of the British Medical Association, and published in the *British Medical Journal*:

It has often been said, gentlemen, and said truly, that great events may issue from small beginnings, and in some sense this is so here, for the thing that in the main determined the subject of this address to you was the one word "pædiatrics." I hate the word as being the embodiment and the product of specialism, and, meeting here to-day as we do as specialists, it is the aim and object of the few words that I shall address to you to insist that we are not so.

These may be called the days of local disease. With our many enthusiastic and patient scientific explorers in the region of disease, thirsting, as they do, for something tangible, something that can be put to the proof by experiment, the constitution, as a factor, has received some hard blows, and the idea of a predisposition would seem, in the minds of many, to be antiquated and puerile. Who can say otherwise, when the whole of the pathology of the present day is absolutely eaten up by bacilli of some shape or another? This needs no reminder when it is within the knowledge of all that not tuberculous disease only, but abscesses of all kinds, syphilis, rheumatism, some forms of heart disease, blood diseases, such as purpura, atrophic changes, such as acute yellow atrophy, chronic hypertrophic skin disease, such as leprosy, and some forms of new growth, cancerous tumors of all kinds, pneumonia, acute bronchitis, tetanus are some of the many maladies that have been attributed either to microbic growth or to microbic influence. It is really no exaggeration to say that no single disease has been discussed or rediscussed of recent years in which bacilli, in some form or other, have not been imported into the question. And, although I have nothing but admiration for the far-reaching value of the work that has been done in this direction, and have no wish to question the advances that will certainly be made along the same lines in the future, I do wish that the arts of prospecting and assay were more liberally followed and cultivated, instead of, as now, everything being considered as a nugget because it has been found in a claim. The lengths to which we now go are often ridiculous. Why, only the other day there was almost a scare because the daily papers proclaimed the fact that there was one poor leper loose in the east end of London. And the hysterics of the press were by no means of commiseration for the leper, but for the contamination he was supposed to be spreading broadcast among the populace; and I believe some public institution took credit to itself, no doubt with an eye to a pocketful of subscriptions, for having hunted him out and put him into a place of safety—as if the presence of a single case of leprosy in a huge population such as that of London were any uncommon thing, or that his mixing with the public were any great public risk. I have seen, too, another microbe fad of late, and, to my mind, both a disgusting and a cruel one. Now that phthisis is proved to be associated with a germ, it is also assumed that it must be contagious, and some original-minded brethren have recently been preaching the noxious nature of the sputa of the phthisical, and have urged that every poor patient so affected should carry about with him what they are pleased to call by the very euphonious name of a spit-pot. I have no doubt that an article of this nature is being exhibited in the museum hard by, for surely the *genius loci* has not been lost upon our enterprising instrument-makers. I was, indeed, shown the other day the newest thing in this line, and I noticed that for facility of disinfection it had wide mouths top and bottom for all the world like a lady's smelling-bottle, with, perhaps, remembering where I am, a *soupçon* of a hygienic feeding-bottle in addition. Now, I say, without fear of contradiction, that this new interpretation of the spread of phthisis is an idea born of a too limited vision as becomes the mites that have begotten it. As if—admitting the necessity of the disinfection, which I will do for the sake of argument and out of respect for opinions which are worthy of all deference—as if an eucalyptoled handkerchief (eucalyptus oil is just now the fashionable antiseptic, I believe, for I hear say that the clergy recommend it as a safe cure for the influenza), or a pocket earth-closet on the principle of the Gamgee pad were not a kinder and a more sanitary thing. Every case of phthisis should carry a spit-pot! Why, Bournemouth, at any rate, ought to socially decapitate the originator of such a thought.

Ideas of this caliber are born of the method of investigation and study now in vogue, and that method is the intense concentration of thought upon the local process of disease. In the trained mind this encourages narrow views, and therefore imperfect views, of disease; in the untrained mind—that is, in the layman—it encourages the demand for specialism and an ever-increasing specialism of specialism. Yes, an ever-increasing specialism of specialism which the following case, a true one, will amusingly illustrate: A friendly obstetric physician a short time ago sent a lady with her child to me. You must know, he said, that this lady is gone on specialists. She has been to me for to cure one portion of her body; she has been to another obstetric physician for another part of her person; she has taken a baby to a specialist for nurslings, and now she comes to you as a specialist for a child of about nine. I need hardly say that I cherished that qualifying word "about," for in its somewhat liberal interpretation lay my only hope in the future of making a living, if that is what we are coming to. Nor is it the public only that is to blame. I think that we as a profession are almost as much to blame, for we run in grooves, indulge in fashions, almost as much as the public does. Witness the bewildering craze for new drugs and that bewildering memory of last Christmas at Berlin.

All this I say is taking us away from the human organism as a whole, and yet it is this whole, this "constitution" as it is called by the outside world, that fixes the external factor, molds it to its own model, and presents it to our gaze and study. And I venture to say that there is no one here to-day who has approached to anything near middle age, and who has been in the position to observe, and to think over the facts as they have presented themselves to him, not in the laboratory only, but at the bedside, in family life, in other worlds than ours, whether as a matter of evolution, of heredity, of cultivation under varying conditions of environment, or what not, who has not become more deeply impressed with the importance of the constitutional element in the production of disease as the years have glided on, and added to his experience of men and things.

Kala-azar in Assam.—The following editorial article appears in the *Indian Medical Gazette* for August: In the twenty-sixth annual report of the Sanitary Commissioner with the Government of India is embodied Dr. Giles's preliminary note on the causation of kala-azar, or black fever, in Assam. Surgeon Giles had been for some time deputed on special duty to inquire into the nature and causation of kala-azar and beri-beri, diseases which had recently come into prominence in Assam. As by far the more urgent matter, the investigation of kala-azar was first undertaken and the town of Gauhati was chosen, as being the most convenient place, to carry on these researches. Dr. Giles, in the course of his clinical examination of cases, found that the one universal symptom common to all was extreme anæmia, and with it necessarily the weakness and wasting so much complained of. He also discovered that though the malady goes under the name of black fever, there is no necessary connection between the disease and a rise of temperature. On the contrary, the most noticeable thermometric symptom was a persistently subnormal temperature, often remaining for long periods below 95° F.; occasionally elevations to the normal or even as high as 100° F. were observed; but in no case was the course of the temperature present for any length of time marked by material characteristics. Further, it appears that any theory connecting kala-azar with splenic enlargement must be abandoned, for only about two thirds of the cases examined in a malarious district presented splenic enlargement, the remaining third and generally the most rapidly fatal cases having no splenic enlargement whatever. Splenic enlargement Surgeon Giles accordingly views as a merely accidental complication. As to the darkening of the complexion, owing to the short duration of his inquiries, he could offer no personal opinion, but he notes the fact that the European medical officers consulted are skeptical as to the existence of any such change. An opinion, however, is hazarded that a deceptive appearance of pigmentation is actually present, but is due not to any essential change in the skin, but is caused partly by the leaden tint always found in anæmia however caused, and partly by the circumstance that during sickness even cleanly natives habitually neglect their persons, and that accumulated dirt and dried epithelium make the skin appear much darker than it used to be during health when properly attended to. Having decided that the one constantly present and most prominent symptom of the malady was anæmia, Dr. Giles set about his investigations as to the cause or causes of the disease. Bacteriological examination of the blood yielded absolutely negative results, but "the first post-mortem examination showed that there were present in the small intestines a number of the well-known and fatal parasite *Dochmius duodenalis*, better known as ankylostoma. The cause of the anæmia in this case was therefore obvious, and, without occupying unnecessary space, I may at once state that I have been able to make out undoubted evidence of the presence of this parasite in every case of kala-azar that I have been able to submit to detailed examination, and not only so, but I have found that wherever kala-azar is present in a village, I have been able to find the ova and embryonic forms of the parasite scattered broadcast in its soil and puddles."

These were very important observations; they have been carefully made and their completion will be awaited with interest. It would be more satisfactory, however, if a detailed description of the symptoms was given in order that these may be compared with the symptoms believed to be caused by the nematoid worm in other parts of the world. Is kala-azar the same disease as spurious beri-beri described by Dr. Kynsey of Ceylon? Is it the same disease as occurred among the workmen of the St. Gothard's tunnel, who were found to be affected with the ankylostoma? or is the presence of the ankylostoma purely accidental in kala-azar? and though when present contributing in some degree to the anæmia produced, just as the presence of *Tænia* occasionally induces that state, are we to seek for some other agent to which the cause of the disease may be ascribed? In view of these questionings it may be as well to note here that as far back as 1871 in that neglected but most valuable report of the Commissioners appointed to inquire into the origin, nature, etc., of Indian cattle plagues, Dr. K. McLeod describes the presence of the ankylostoma in the aphthous material in the duodenum of the cow, and mentions the great number of the ova of this parasite found in the mucus. The importance of the parasite was, however, measured at its proper value, and no theory of cattle plague causation was founded on the discovery. We may also refer to a paper by Dr. McConnell published in the *Lancet* of July, 1882, wherein it is shown that of twenty cases examined in the Medical College, Calcutta, in which the ankylostoma was found to be present, in only eight cases was there anæmia, while in the remaining twelve no sign of anæmia existed. Indeed, from the table given by Dr. McConnell, it might be statistically maintained that the parasite was more likely to be the cause of dysentery than of anything else. Under these circumstances, until more evidence is furnished by Dr. Giles, we must remain somewhat skeptical as to the causation of kala-azar being due to the parasite in question. Before any claim can be made to such a discovery, it must be conclusively shown that persons dying of other causes, and not of anæmia, in the kala-azar districts, do not likewise have ankylostomata in their intestines.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, October 3, 1891.

Original Communications.

THE FREQUENCY OF THE LOCALIZATION OF PHTHISIS PULMONALIS IN THE UPPER LOBES.[*]

By J. WEST ROOSEVELT, M. D.,
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There is no need at this time and in the presence of this audience to state that, without the presence of Koch's bacillus, there is no tuberculosis. Possibly the statement that without tuberculosis there is no phthisis might not even yet be so generally admitted, though it is probably true.

In this paper the writer has confined his attention simply to the following points:

1. Consumption, in an enormous majority of cases, begins in the upper lobes of the lungs, near the extreme apices.

2. Consumption, whether called "catarrhal" or "tubercular phthisis," or "caseous pneumonia," or by any other name, has, as part of its lesion, newly formed tissue containing the *Bacillus tuberculosis* of Koch. This new tissue has the anatomical structure which we call "tubercle." It is, as is well known, composed of a basement substance containing lymphoid and epithelioid cells, and not infrequently also giant cells. Tubercle tissue is comparatively bloodless, and for this reason soon breaks down. It is peculiarly prone to what is called "cheesy degeneration."

It is unimportant for the present discussion whether the bacillus is regarded as a cause, an accompaniment, or a result of the disease process.[†]

The bacillus is found in the cases under discussion. The lesion in a vast majority of them begins in the apices. The question before us is simply this: *Why does the bacillus lodge in the apices of the lungs in human beings in a very great majority of cases before it invades other portions?*

Why it lodges more often in the lungs than elsewhere is quite clear. If it is inhaled, it is inhaled into these organs. If it is absorbed through mucous membrane or skin, the contents of the absorbing lymphatics and veins alike must pass through the lungs before entering the systemic arteries; and the pulmonary capillaries are a filter through which masses of bacilli or anything else only a little larger than a white blood-cell can not pass.

Single bacilli or small groups, of course, can and doubtless do freely circulate with the blood-cells through these vessels; but a larger mass containing bacilli and perhaps a number of leucocytes or some cheesy matter would be arrested by them. Cheesy masses containing bacilli originate more often, in the human body, in situations where, if they enter at all, they must enter the body through lymphatics or venous radicles. For this reason they must more often be arrested in the lungs than elsewhere.

Unless tubercle bacilli are spontaneously generated within the lungs, they must enter them through the air-tubes, blood-vessels, or lymphatics.

The infectious material is thought by many to be inhaled. But the explanations advanced of why it is so frequently inhaled into the upper lobes are most contradictory. Scattered through the literature we have many remarks about the so-called phthisical habit, by which is meant a slender, rather tall figure, with poor muscular development; a long, slender neck; a small amount of superficial fat; and a flat, long, thin thorax, which thorax is said to be for some reason deficient in the movement of the upper ribs. This type, like every other conceivable type, of human being does undoubtedly sometimes develop phthisis. In many papers the cause of the disease is said to be a "paralytic thorax" with deficient motion of the upper part of it. Such a thorax is the thorax of a person who already has phthisis in the upper lobes. It is a result, not a cause, of the disease.

All of the more generally accepted theories which explain the frequent selection of the upper lobes by infection through the air-passages assume some difference between the movements of the upper and lower parts of the thorax, and, as a result thereof, a like difference in movement of the upper and lower lobes of the lungs. So far they agree, but the exact results of this supposed difference are explained by various writers in several ways. All agree that the upper portions of the chest move, absolutely, less than the lower, and hence assume that the same thing is true of the movements of the upper and lower lobes. The idea that the *absolute* motion of any part of the chest or lungs has nothing to do with the question does not seem to have been appreciated by the majority of these theorists. Granting that any part of the chest moves less than any other (and even supposing, *argumenta gratia*, that each part of the lung follows each part of the chest wall, which I deny), we have to consider relative and not absolute motion, for the surface of a larger bulk of lung must be moved a greater distance than the surface of a smaller, in order to produce the same amount of expansion or contraction in the vesicles of both. How the supposed difference in the motion determines the frequent selection, by the virus, of the upper lobes rather than the lower is a matter of controversy. Some writers say that the deficiency in motion of the upper parts of the chest causes, in the upper lobes, feeble respiratory power and what they call "insufficient ventilation." Others, perceiving that diminished respiratory power implies diminished inspiratory power, and therefore does not account for the facts, state, without any kind of proof, that the deficiency of expiratory power must result in rendering the apices less able than the rest of the lungs to expel infectious material. In a paper published in May, 1889,[*] the writer said that the alleged difference could not be shown to exist.

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[*] Read before the Association of American Physicians at its sixth annual meeting.

[†] If the bacillus only can obtain a suitable soil in the upper lobes because of pre-existing lesion, or because there is some congenital or acquired vulnerability of these regions, which does not occur, as a rule, in the lower, proof of one or the other of these possibilities would modify or utterly refute the most prominent (though not the most important) statements made in this paper. The theory of embolic origin of pulmonary tubercles and the physical laws stated to explain the reason for the frequent selection by tuberculous matter of the upper lobes, necessarily occupies a larger space and a more prominent position than the (practically more important) deduction, based upon experimental evidences, that pulmonary consumption is probably produced in many cases by bacilli which enter the naso-pharynx, trachea, œsophagus, mouth and gastro-intestinal tract, or skin. The point of greatest importance insisted upon is that the bacteria can not be directly inhaled and lodged by the air currents in the pulmonary vesicles.

Some authors think that the lower lobes, because of their greater supposed motion, empty a part of their contents, during expiration, into the upper. This is so evidently preposterous, when we speak of ordinary breathing, that still others have modified it and allege that only during cough does this peculiar phenomenon occur. Among the latter is Meltzer,[†] whose ideas carry a great weight, for he is, so far as I know, the only author who has approached the problem in a genuinely scientific way. I must disagree with an important part of his explanation, however.[‡]

Most writers upon the subject seem to have very vague ideas of the physical factors involved. Let us take the statement of Rindfleisch in von Ziemssen's *Cyclopedia*, vol. v, pages 654 *et seq.*, where he says that the weight of the arms hanging upon the upper part of the chest must restrict its movements. He adds that the secretions in the upper lobes are thickened because, as Virchow has remarked, the thickness of such secretions in the bronchi is "inversely as the blood supply." Subsequently, on page 656, Rindfleisch states that an insufficient quantity of blood in the lungs will cause the vessels of the lower lobes to be filled more than those of the upper. Under what conditions this "insufficient quantity of blood" exists, unless it is in cases of disease of the right side of the heart; why, granting its existence, it should cause "the vessels of the lower lobe to be filled more than those of the upper"; or what possible effect the chest movements can have in producing the alleged phenomenon, are questions passed over by this author in dignified silence.

This statement by Rindfleisch is mentioned merely to show how confused a most excellent microscopist may become when dealing with a physical problem. He evidently not only has disregarded the actual anatomical relation of the chest and its surroundings, but also the resultant of the forces produced by muscles and bones. Any one who takes the trouble to look at the shape of the clavicles and their attachments to the sternum and scapulæ, and also at the attachments of the trapezii and other muscles, will see that the weight of the arms is supported by the vertebral column and the cranium, and that the position of the clavicles in relation to the sternum and scapulæ is such that the upper part of the thorax sustains hardly any part of it.

In an effort to explain the vulnerability of the upper lobe, Rhuele (von Ziemssen's *Cyclopedia*, American edition, vol. v, p. 487) says: "The apices project from three to four ctm. above the clavicles, and this projecting portion, being situated *outside the chest, is subjected to the pressure of external air.*" (The Italics are mine.) Now, why these portions should be said to be "outside the chest," if by "chest" is meant the thoracic cavity, is incomprehensible. Certainly they are no more "subjected to the pressure of the external air" than if they were situated close to the diaphragm. The lungs are always and at every part under a condition of what is called negative pressure produced by the chest walls. It makes no difference whether the upper or lower part "project" three ctm. more or less. In reality, what this writer calls, incorrectly, "projecting parts" are in no sense whatever "subjected to the pressure of the external air"; if they were, they would not "project," for this pressure would permit them to be withdrawn by their own elasticity until it ceased to be exerted. This mistake calls to mind the numerous errors which have been made in calculating the amount of muscular force expended during inspiration. It has frequently been assumed that, since the inspiratory movement is purely muscular, the muscles have, unassisted, to overcome more or less of the pressure of the air upon the outside of the chest, as well as the elastic recoil of the lungs, so that many of these calculations are utterly valueless. In point of fact, the elastic recoil and the external air pressure are nearly balanced by the elasticity of the ribs and costal cartilages. This fact makes it clear that the muscles during inspiration receive much aid from the same elasticity.

One observer remarks that bulging of the upper part of the chest was observed during cough in a patient whose upper ribs were absent, and thinks that this is a proof that in that part of the chest there is during cough an increased air pressure relatively to the other parts when the ribs are present. A moment's thought will show that the bulging took place simply and solely because the ribs were absent. Had they been present, the conditions would have been utterly different.

I have, in a former paper,[*] expressed the opinion that it is probable that the chest movements have nothing to do with the expansion of the part of the lung which happens to lie immediately beneath any one part of the chest wall. Perhaps this statement is a little too sweeping, but it is safe to say that they have very little to do with it. If there were no lungs in the chest—if the thorax was simply a cavity with an opening into it connecting with the external air—it is evident that expansion or contraction resulting

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[*] The Movements of the Thorax and Lungs considered in their Relation to Certain Pulmonary Diseases. *Med. Record*, May 25, 1889.

[†] Ueber die Localisation der Tuberkulose in der Lungenspitze und über den Mechanismus des Hineingelangens von corpusculären Elementen in die Lungenalveolen. Sonderabdruck aus den *Verhandlungen des X. internationalen medicinischen Congresses.*

[‡] He makes this statement, which seems to me incorrect:

"Beim Husten . . . erfolgt zuerst eine tiefe Inspiration, darauf ein Verschluss der Glottis, eine Erschlaffung der Inspiration und eine energische Contraction der Expiratoren. Am Ende der tiefen Inspiration ist der Druck in allen Theilen der Lunge gleich dem Atmosphärendrucke, in allen Theilen *mit Ausnahme derjenigen Alveolengruppe, welche durch einen in den Alveolargangen adhärenden Embolus von der Luft abgesperrt ist.*" (The Italics are mine.) Every alveolus, whether plugged or not by any substance in the bronchiole through which it communicates with the air, is, under all circumstances, subjected to a pressure, after deep inspiration, which precisely equals that of the external air. If its afferent bronchiole is plugged, it may not expand so much as the surrounding alveoli, but the pressure exerted by the air within it is always the same.

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[*] *Medical Record*, May 25, 1889.

from the movement of any part of the walls would practically affect equally all the contained air. The introduction into the cavity of an elastic organ like the lung, which communicates with the air, while the cavity itself does not, really alters the physical conditions very little. The movements of the organ, expanded as it is by the air, can hardly differ from those of the air itself in a cavity containing one lung. It is very unlikely that any part of the lung should be developed so that its bulk would be greater than could be properly expanded and contracted by the respiratory movements. Even if there really were some difference in the relative expansion and contraction of the upper and lower parts of the lungs, it is hard to imagine that as a result of these differences tubercle bacilli should be lodged so frequently in the apices, while the pneumococcus, in a majority of cases, is drawn into the lower lobes. Moreover, I must remind you of the well-known difference in the types of respiration which are characteristic of the two sexes. My reason for so doing is simply to accentuate (what I have several times stated in other papers) that this difference is a most serious objection to any theory which explains the selection in a majority of cases (in both sexes) either of the upper or lower lobes by any inhaled infective substance. In the female the expansion of the upper part of the chest is relatively much greater than in the male, when compared to the expansion of the abdomen. Among civilized women, at least, thoracic breathing is the rule, while among civilized men abdominal breathing is usual. If, as is so often assumed, the upper lobes are so frequently infected by inhaled tubercle bacilli, which are lodged in them by some peculiarity in the movements of the upper parts of the chest, then, surely, it must be a remarkable peculiarity, for it seems unaffected by the two entirely different types of breathing which obtain in men and in women. In the one case a *relatively excessive movement* of the upper chest must produce this result; in the other, a *relatively insufficient* movement must do the same.

It is very hard to believe that the bacilli can possibly be carried directly by the air through the ultimate bronchi into the air-vesicles. It is even harder to believe that in many cases the earliest tubercles should be found in the pulmonary pleura; yet a large number of the adhesions so frequently existing between the two layers of the pleura are the result of tubercular inflammation. The larger bronchi usually escape tubercular infection until long after the walls of the air-vesicles are diseased. If the bacilli are inspired, why do they first select the termination of the air-passages and avoid the walls of the larger tubes? If they are dry, they must behave—being governed by the same laws—precisely in the same way as any inspired, finely divided dust. If suspended in secretions, they, together with the secretions, must behave in the same way as all liquids do in the air-tubes. What is probably the behavior of dust or liquids in these tubes?

In regard to dust, there is no proof, so far as I know, that any solid particles are ever drawn in by the air currents even as far as the smallest bronchi. A number of experiments upon lungs removed from the body, and suitably prepared, confirm the results of other observers, that it is impossible to blow fine powders into the lobules. In no case have I been able to force the powder beyond bronchi of a size sufficiently large to be visible to the naked eye. In cases of pneumonoconiosis the dust is, so far as I can learn, distributed in somewhat the same way as tubercle is.

Respecting the behavior of fluids in the air-tubes, I have no experimental evidence to offer. It is worthy of remark, however, that—except in œdema of the lungs, where the serum probably directly enters them; in broncho-pneumonia; and in resolving lobar pneumonia, where, without doubt, the products of inflammation and resolution exude into them—it is very rare to find fluid in the air-vesicles. Considerable hæmoptysis may occur, yet no blood is found in the lobules. Profuse bronchial secretion either does not find its way into them or it must be absorbed with marvelous rapidity by their walls.

The tubercular lesion is primarily deep-seated (*i. e.*, situated far from the larger air-tubes). Rindfleisch states that it begins just where the ultimate bronchiole abruptly terminates in the lobule. While I do not admit the accuracy of his diagram of the lobule, it seems to me that the position of the commencing tubercle indicated by him is correct. The younger tubercles, so far as my observation goes, usually are found near the entrance of the bronchiole into the lobule. *This is precisely where the pulmonary artery, which accompanies the bronchiole, abruptly divides into capillaries. The terminal branch of the artery is quite large; the capillary network, although abundant, is composed of vessels of small caliber. It is here, where the younger tubercles are found, that one would expect a small embolus to be arrested.*

Nothing else than the tubercle bacillus seems to be inhaled in the manner in which this bacillus is stated to be inhaled. It is not without importance to note that the alveoli of healthy lungs are usually found to contain no bacteria at autopsies made soon after death. It is therefore probable that during life these germs rarely enter them, if, indeed, they ever do. Seemingly dust can not be driven into them under positive pressure. Of course, there is a great difference in the physical conditions which obtain in lungs inflated by positive pressure and lungs inflated, as they are during life, by negative pressure. Theoretically, at least, dust entering the lungs under positive pressure must be carried farther in than under negative, for the inspiratory current resulting from positive pressure is, in the smallest bronchi, more forcible, while the same current produced, as it is, under normal conditions, under negative pressure, is less forcible than the expiratory.

It is improbable that the bacilli are ever drawn into the vesicles anywhere in the lung with the inspired air, and inconceivable that the direct action of the air currents should determine in such a majority of cases the primary infection of the upper lobes.

Possibly the infectious substance is lodged in the upper lobes directly by lymph. We do not positively know the direction of the lymph current in the lungs, but it is extremely probable (indeed we may say almost certain) that it is from the pleural surface toward the root. There is so little doubt of the truth of this that direct infection of the lungs by a current flowing from the root toward the pleura is not worthy of consideration, especially when the anatomy of the pulmonary arteries is studied. Indirectly, however, the lymphatic system probably plays an important part in determining the seat of pulmonary tuberculosis, because infectious matter may be introduced with the lymph through the thoracic ducts into the venæ cavæ. It is certain that tubercle bacilli can pass through lymph nodes, since scrofulous infection of distal glands is so frequently succeeded by that of proximal. The fact that scrofulous infection occurs shows that the bacilli can be absorbed by lymphatics through mucous membrane or skin. Whether absorption takes place only through wounds in these surfaces or through normal unbroken tissue is not important. It frequently occurs.

The pulmonary artery arises from the right heart and soon divides into two large trunks the course of each of which is represented by a curve whose convexity is directed upward. The first branches given off from the main trunk supply the upper lobes. These branches arise from the superior surface of the main vessels—*i. e.*, from the convexity of the curve. These branches give rise to others which pursue almost a straight course to the pleural surface. This is true of the larger subdivisions which accompany the larger bronchi. Before arriving at the pleura they give rise to a large number of short vessels whose course is nearly at a right angle to their own. In a paper read at the New York Academy of Medicine some months ago, the writer called attention to the fact that nowhere else in the body does a large arterial trunk give rise to such numerous small branches. Only one more point is of importance for our present purpose. It is that rather larger arterioles break up abruptly into capillaries where they enter the lobules, as has already been remarked.

It is evident that substances introduced into the systemic veins must, if not arrested before reaching the right ventricle, enter the pulmonary artery, and, if not small enough to pass through the pulmonary capillaries, must be arrested somewhere in the lungs. Owing to the relatively large size of the pulmonary arterioles, it is evident that emboli whose diameter is considerably greater than that of the capillaries can pass through the whole length of the former vessels and only be arrested at their abrupt termination in the capillary network.

If tubercle bacilli enter the pulmonary arteries, does the anatomy of these vessels suggest a reason for the frequency of tubercular infection of the apices? It seems to me that it does.

The blood circulating in the pulmonary arteries must behave as any fluid does in motion through curved tubes. It is unimportant for our purposes whether the walls of these tubes are elastic or rigid, since we are concerned only with the moving fluid and with emboli suspended in it. The course pursued by such emboli is not much influenced by the elasticity of the vascular walls, but it is greatly influenced by the changes in direction of the moving fluid produced by them.

I hope I may be pardoned for reminding you of certain well-known physical laws. In the first place, as you will remember, a body set in motion tends to continue moving in a straight line, and does so unless influenced by some force whose direction is not the same as that which was first applied. In the second place, momentum is determined by the mass of a moving body multiplied by the speed of its motion. If two bodies move in the same direction at the same speed, the momentum of the heavier will be greater than that of the lighter, and therefore the heavier is able to overcome a greater resistance than the lighter.

Let us apply these laws to a fluid in motion through curved tubes and having suspended in it small, freely moving solid particles. The course pursued by these solid particles will vary accordingly as their specific gravity is greater than, equal to, or less than that of the fluid. If the specific gravity of the suspended solid particles is greater than that of the fluid, their momentum will also be greater; therefore less force is required to change the direction of the motion of the fluid than that of the solid particles, and the latter are thrown against the outer—*i. e.*, peripheral—wall of the tube.* In the pulmonary artery, therefore, small emboli whose specific gravity is greater than that of the blood must tend to approach the upper wall of the two main trunks, since this wall forms the periphery of their curves. The branches supplying the upper lobes arise from this upper wall. Therefore these small emboli would naturally enter them. The course of large emboli must be different, and they would probably enter branches supplying the lower portions of the lungs. It is needless to explain in this paper the reasons for this difference. I would recall to your minds that size is relative.

If small emboli containing tubercle bacilli enter the right heart, and if the specific gravity of such emboli is greater than that of blood, they must be driven far more frequently into the apices than into any other part of the lungs.

If the conditions just mentioned actually obtain, the theory of the infection through the pulmonary arteries is so plausible that it may almost be said to be proved. Unfortunately, however, proof is lacking in regard to two important factors. First, it can not be positively stated, although it is perfectly conceivable and quite probable, that small masses containing tubercle bacilli ever enter the blood through the thoracic ducts; second, supposing that such masses do enter the blood in the manner stated, it is not proved that their specific gravity is greater than that of the blood. Cheesy matter obtained from scrofulous glands is, in all cases observed by the writer, of higher specific gravity than the blood serum. As is well known, such matter contains numerous bacilli. If the small infectious emboli find their way into the blood through the lymph-vessels, they probably are composed of cheesy matter containing bacteria. Certainly no emboli capable of passing through the lymph-vessels can be very large, and therefore, so far as their size is concerned, there is no reason why they should not enter the apices. The bloodlessness of tubercle in the lung, the frequency of endarteritis and of areas of coagulation necrosis as accompanying lesions, and the growth of the youngest tubercles near the point where the pulmonary arteriole enters the lobule, are strong evidence that the infection takes place through the pulmonary arteries. Finally, there is no satisfactory evidence to show that it takes place in any other way.

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* Extremely small emboli are not possessed of momentum sufficient for them to overcome the resistance of the fluid in which they are suspended as quickly as those of larger size. This resistance tends to prevent them from following the same course as the larger, for they can not as soon reach the outer walls of the curved tubes. On the other hand, emboli of considerable size, though they tend to run along the outer walls, must pursue a different course from both the somewhat smaller and the very smallest, as regards the branches which they enter. These large emboli feel the effect of certain influences which the smaller do not, which result from the viscosity of the fluid and its friction upon the walls of the containing tubes.

There is much in this paper open to the objection that the statements are theoretically, perhaps, correct, but that no proof is offered of their correctness. It must be said, however, that the paper does not pretend to be anything but a report of the theories based upon investigations of the anatomical and physical questions involved, which seem to the writer plausible and worthy of study. Certain facts are reported which are of considerable importance. Some of the recorded observations are probably new, though this is a matter of no moment. All, new or old, have been demonstrated personally by the writer.

The facts may be summed up as follows:

1. The tubercle bacillus is found far more frequently in the upper than in the lower lobes of the lungs.

2. The pneumococcus, while it does not so often as the tubercle bacillus lodge in a particular part of the lung, nevertheless in about four fifths of all cases of pneumonia the lower lobe of the left lung or the lower or middle lobe of the right is the seat of the disease.

3. Inhaled dust does not usually lodge first in the part of the lungs where the tubercle bacillus is found.

4. It is impossible to drive any fine powder into the air vesicles after the lungs have been removed from the body, positive pressure being employed.

5. The tubercular process involves the walls of the vesicles before the bronchi are affected, at least in a vast majority of cases.

6. Neither liquids nor solids in the bronchi are more often found in the upper than in the lower lungs. In bronchitis, acute or chronic, the secretion is found in the bronchial tubes proper, and not in the air-vesicles, and it is no more abundant in one lobe than in the others. In cases of hæmoptysis the blood rarely finds its way into the vesicles, and the particular set of tubes which contain the greatest amount of it is determined by the original seat of hæmorrhage, the quantity of blood, the rapidity and duration of its flow, and the position of the patient. When the hæmorrhage is so profuse as to expel most of the air from the larger tubes, as is the case when, for example, an aneurysm of the aorta ruptures into the trachea, or a large branch of the pulmonary artery is the source of the hæmorrhage, the blood fills the vesicles, but this occurs as a result not of the movements of respiration, but of the pressure of the effused blood propelled by the heart. This has no bearing upon the subject under discussion.

7. There is no evidence that the movements of the thorax affect any part of the lungs more or less in proportion to its bulk than any other part.

8. Among civilized people there is a marked difference between the sexes in the type of breathing. Women do not suffer from consumption quite so frequently as men; but consumption in women begins at the apices in about as many cases of consumptive women as it does in consumptive men.

9. The pulmonary artery and its main branches describe curves whose convexity is directed upward. The blood-vessels supplying the upper lobes are given off from the convex surface of the main trunks.

10. Small particles immersed in rapidly moving fluid, when passing through curved tubes, are thrown against the outer wall of the tubes if the specific gravity of the particles is greater than that of the fluid. In the pulmonary arteries small emboli of greater specific gravity than the blood would tend to run along the upper side of the main branches and enter the trunks which supply the apices. If the particles are extremely small, or if they are large enough to occupy a considerable part of the caliber of the tube, this tendency is not so marked as it is in the case of particles whose size is sufficiently great for them to attain a momentum capable of overcoming the friction which the surrounding fluid exercises upon them, yet not great enough for them to be affected by the direct force of the current.

11. The contents of the lymphatics enter the venous blood through the thoracic ducts.

12. Tubercle bacilli can, and often do, pass through lymph-nodes.

13. Cheesy matter is heavier than blood serum.

The following statements are probably correct, but are not proved:

1. Tubercle seems to begin at the points where the pulmonary arterioles give rise to the capillary network.

2. Small masses of tubercle bacilli seem to have a greater specific gravity than blood serum. (Such masses grown upon beef-peptone-agar were found by the writer to sink in a solution of common salt after the agar had been thoroughly washed off. The experiments were too few in number to be regarded as conclusive.)

The foregoing statements make it probable that the infectious material producing consumption enters the system and is conveyed to the apices of the lungs, not by direct inhalation through the bronchi into the air-vesicles, but that it is absorbed by the lymphatics or blood-vessels, and, passing through the vena cava and right heart, it is swept along the upper wall of the right or left pulmonary artery and, entering the branches which supply the corresponding apex, is arrested by the capillary network. It is probable that the virus is introduced much more frequently through the lymphatics than through the blood-vessels. There is abundant evidence to show that the mucous membrane of the mouth, nose, and pharynx permits absorption of the bacilli through its lymph channels. The fact that lymph nodes do not, in other parts of the body, completely prevent the bacteria from passing makes it extremely probable that the lymphatics of the stomach and intestines also permit them to pass. The mucous membrane of the trachea and larger bronchi may very possibly become infected, but it is through their lymphatics that the bacilli are introduced and follow the same course through the thoracic ducts, right heart, and pulmonary artery, as bacilli do when absorbed through other mucous membranes.

Whether true or false, this theory is sufficiently plausible to make us careful not only to prevent the inhalation of dried sputum containing bacilli, but also to guard against its introduction into the system through the mouth, nose, stomach, intestines, or wounds in the skin. The handling of any receptacles containing the sputum of a consumptive might be the means of subsequent infection through the nose or mouth. The milk of tuberculous cows is dangerous not only because it may occasionally produce general tuberculosis, but also because it often causes pulmonary tuberculosis, the bacilli passing through the thoracic duct and being arrested in the lungs. Tuberculous meat may in a similar manner produce consumption. The possibility of bacteria being introduced by any food upon which they have chanced to lodge should not be forgotten. It is not at all unlikely that the dust of dried sputum may infect salad, cold meat, or previously untainted milk.

In conclusion, I wish to say that I am not advocating any preposterous efforts to avoid tubercular infection. I do not wish every one to eschew salads, cold meats, unboiled milk, etc. Two things must be borne in mind: First, that, although about one seventh of all human beings die of tubercular diseases, six sevenths do not, and of the six sevenths probably nearly one half at some period of their lives suffer from pulmonary tuberculosis and recover from it. Second, that to produce fatal tuberculosis the quantity of bacteria introduced must be very great, and the individual who absorbs them must be in a condition which makes it possible for them to live in his body. Any one who has inherited or acquired what is called a tendency to consumption should take particular pains, first, to improve the general condition of his body, and then to avoid every possible source of infection, whether by food or anything else. The clothing of consumptive people should be regarded as dangerous to handle. Burning a certain amount of phthisical sputum is not a sufficient means of preventing the spread of the disease. Doubtless many bacilli are destroyed if the sputum is burnt—as the only good bacillus is a dead bacillus—but a great many may never get into the receptacle provided for them, but may lodge upon some portion of the clothing of the patient. Every article of clothing used by a consumptive is a possible source of danger to other vulnerable people who come in contact with it.

Life would not be worth living should we undertake to avoid every conceivable chance of infection by microbes. "Three score years and ten" of life spent in shunning human society either on a high plateau or a desert island where the germ of malaria is unknown, drinking distilled water, avoiding uncooked and eating only overdone food, would be an existence not altogether without certain drawbacks to the majority of people. Even these precautions might not insure immunity. A certain amount of risk must be taken by every one who wishes to do anything with his life. It is possible to spend so much time in prolonging one's existence as to make that existence both useless and unendurable. It is, however, worth while to study every possible source of tubercular infection, since by this means some lives may be saved.

Killing tubercle bacilli seems a rather futile occupation. Though a hundred million were destroyed every day, countless billions would survive. If the entire human race should unite to exterminate them, it is doubtful whether it would succeed. This, however, is no reason for neglecting to disinfect everything which we know or believe to harbor them.

The story of the gentleman who lived in a country infested by venomous snakes is appropriate. He stated that for twenty years he had killed at least twenty snakes daily, but that the killing of one hundred and fifty thousand, more or less, seemed not at all to have reduced their number. When asked why he continued his hopeless fight, he replied that "he still objected to them as much as ever in the parlor."

OBSERVATIONS ON THE USE OF COCAINE.

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Since Koller rescued cocaine from oblivion, few drugs have met with such universal indorsement, owing to its real value as a local anæsthetic and its supposed freedom from danger, but, like the earlier anæsthetics, it is likely to do a great deal of harm until its properties are more thoroughly studied and its real dangers recognized. The *Lancet*, in speaking of cocaine, says: "No doubt that other symptoms, at a distance, do result from the external application of the anæsthetic, but they are for the most part insignificant and by no means dangerous."

This may be true of its external use, but, with a daily experience of four years in its use in dental and general surgery, I am far from considering it as safe as it is generally supposed to be.

In my opinion, few drugs require a closer discrimination in their application. With chloroform we have the history of the patient and the condition of the various organs to guide us in its use; but with cocaine it is different. Here, in my judgment, we have a lurking idiosyncrasy to deal with which furnishes us few evidences of its presence. Often the stout and robust man will fall before it, as by an electric shock, while an enfeebled woman will endure with impunity almost any quantity. From a close study of cocaine used subcutaneously I have drawn certain observations which have proved an aid to me in its use and may prove of interest to some, in connection with a case or two of alarming symptoms which have occurred recently in my practice, and the means used in their resuscitation.

Observations.—1. It is more dangerous when used about the mouth than in other situations.

2. It is especially dangerous when used in the posterior portion of the mouth (my observations here being limited to its use for the extraction of wisdom teeth).

3. The sympathetic, cardiac, and respiratory nerve-centers are greatly stimulated; especially is this true of the respiratory.

4. Patients of a cyanotic appearance, with sluggish circulations, bear cocaine badly, as a rule.

Case I.—Mrs. B., aged twenty-eight years, in robust health, except local trouble with the second bicuspid. She gave a history of having taken chloroform badly once; and could not take the bromides, chloral, or morphine, without bad effects. She was nervous and of a cyanotic type. With these facts before me, I considered carefully the danger of using cocaine, but, as something was necessary, I decided to use a small quantity of a two-and-a-half-per-cent. solution. This I did, injecting not more than three drops over the affected tooth. In less than twenty seconds my patient was unconscious, with a rapid, weak pulse, a pallid countenance, quick respiration, and tetanic-like convulsions whenever touched, and at intervals when undisturbed. I at once gave an injection of sulphuric ether and tincture of digitalis. She responded promptly, only to relapse after a few moments into this state of collapse.

She continued in this vacillating state for an hour, when she regained consciousness. In this case I had no time even to attempt to extract the tooth after the injection before she became unconscious.

Case II.—Mrs. M., aged thirty-three years, stout and in good health, but of the same type as in Case I. She called to have six teeth removed. She desired chloroform, but, as I had seen her dangerously affected by it twice before, I declined to administer it to her alone, but made an engagement to meet her family physician, Dr. C. L. Richardson, at her residence the following morning (August 22, 1891).

At the appointed hour we met, and, at his suggestion, I persuaded her to try cocaine instead of the chloroform. I used a three-per-cent. solution, which acted well as an anæsthetic; she was nervous, and the operation lasted between a half and three quarters of an hour, during which time I used about a fourth of a grain. Immediately after the last tooth was removed she walked across the room, and in an instant she was in a state of unconsciousness and the most alarming syncope I ever witnessed; in a few minutes her pulse and respiration were almost imperceptible, her skin was cold and pallid, with spasmodic contractions of her face and limbs, and her pupils were alternately dilated and contracted, but would always respond to light. After treatment was begun she would revive—that is, her pulse and respirations would improve, but she was totally unconscious until recovery—and then fall back into a death-like state, until finally she lay, apparently, a lifeless form, with no evidence of life except a thready pulse too rapid to be counted.

Treatment.—Artificial respiration when the breathing ceased; subcutaneously, fluid extract of digitalis, also atropine, one one hundredth of a grain, followed shortly by chloroform hypodermically. I had no ether. This was the general course of treatment as indicated by the symptoms. At one time she was apparently beyond hope, but responded to the use of stimulants. This scene of stimulation and collapse continued for three hours, when she recovered from the most appalling symptoms I have ever witnessed.

An Obstetrician's Generous Offer.—The eminent French professor of obstetrics, Dr. Tarnier, does not forget the lowly village where he was born, named Arc-sur-Fille. He has observed with grief the diminishing natality of his nation, and has determined to give a practical expression to this feeling in a novel manner; he has promised a gift of one hundred francs to every family at Arc-sur-Fille which shall have contributed an infant to the population of France during the year 1892. This is an original way of causing married people to reflect on one branch of their duties in life, but the villages in question can have no reason to complain that they have not received a timely warning.—*Journal of the American Medical Association.*

THE TREATMENT OF STRICTURE OF THE URETHRA AND ITS RESULTING CONDITIONS

BY EXTREME LOCAL DISTENTION AND WITHOUT CUTTING THE MEATUS.*

By JAMES P. TUTTLE, M.D.

While, perhaps, no surgeon at the present day maintains that all gleets and chronic gonorrhœas proceed from stricture of the urethra, yet so large a number are associated with or prolonged by this condition that its study constitutes one of the most interesting in genito-urinary practice. The normal variations in the urethral caliber require that a definition of the term stricture should be broader than "a constriction of the urethral caliber," and Dr. White has recently given us, perhaps, the best practical definition in the words "Stricture is an abnormal lessening of the caliber or the dilatability of the urethral canal associated with changes in the mucous, muscular, or submucous structure constituting its walls." † But here the old question arises, What constitutes an abnormal lessening or dilatability of the canal? When Dr. Otis first published his scale for estimating the size of the urethral caliber a chorus of protests arose all over the medical world against his excessive measurements.

In the learned discussion which followed this announcement, in the Medical Society of the County of New York, those estimates were confirmed, rather than shaken; for, although the beautiful casts and scientific measurements made by Dr. Sands and Dr. Weir showed that the proportion between the penile circumference and the urethral caliber was not absolutely constant, yet they just as clearly showed that, with few exceptions, we might, in a general way, estimate the probable size of the canal by measuring the organ, and that undoubtedly the urethra was larger and capable of much greater distention than had before been generally known. Reybard, Sir Henry Thomson, Civiale, Sappey, and others had shown from anatomical studies that the urethra was capable of even greater distention than Dr. Otis had stated, and Sir Henry Thomson had said: "The question of the diameter of the urethra must be considered as resolving itself, to a certain extent, into the measure of its capability of being extended, and this is of greater practical importance than the width of the mucous membrane, when slit up, after death;" ‡ but such knowledge had never been put to practical use, except for lithotrity, and it remained for Dr. Otis and Dr. Allaire # to systematize and establish the practice of thorough dilatation in the treatment of urethral diseases.

The variations of caliber in the different portions of the urethra were, in that discussion, more clearly brought before the professional mind, and an attempt was made to formulate some more or less regular proportions between

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* Read before the American Association of Andrology and Syphilology at its fifth annual meeting.

† *University Med. Mag.*, viii, p. 291.

‡ *On Stricture of the Urethra*, p. 6.

Recueil des memoires méd. et chir. militaires, December, 1865.

the coarctations and dilatations of the different portions of the canal.

What are the normal constrictions of the urethra, and what relation do they bear to the normal caliber, were the questions discussed by Dr. Weir * in 1876, and they still await an answer from the profession to-day. Dr. Otis gives a difference of 2·05 mm. in circumference between the bulbous and the ante-bulbous portions of the urethra. Dr. Sands, Dr. Weir, and Dr. Reybard give a difference in diameters of 4·6 mm., 5 mm., and 3·16 mm., from which the differences in circumference would be 15·5 mm., 15·8 mm., and 9·38 mm., respectively. But these latter, being the measurements, under an equable distending force, throughout the canal, only show the variations in the distensibility of the different portions of the canal, and not at all the actual difference in caliber. Our methods of investigation are still too imperfect to add any new light to this subject, unless we may accept the records of the new urethrometer devised by Dr. Stewart. This instrument is open to the same objection, that the pressure is equable over all parts of the canal, regardless of their distensibility—an objection which I do not consider weighty enough to prevent its being a most useful and accurate instrument. My experience with it has been too meager to draw conclusions from, but, so far as my observations have extended, they corroborate the figures I had obtained by the improved Otis urethrometer, and measurements of the stretched mucous membrane in fifty cadavers and more than a hundred living subjects which I have examined with these points in view. It is not necessary to introduce long tables here in reference to these studies. The simple conclusions will suffice. I have found—

1. A lessening in caliber of the membranous urethra, compared with that of the prostatic, averaging 3 + mm.

2. A constriction at the anterior border of the bulbous portion, about at the point of attachment of the suspensory ligament, averaging nearly 4 mm. At this point the urethrometer nearly always gives a decided jump; it can usually be distended a size or two after passing here, and be drawn uninterruptedly to the next constriction.

3. A constriction of from 1 to 3 mm. at the posterior border of the fossa navicularis, which, though not always present, was found in the large majority of cases.

4. The urethra could be distended at all points except the meatus to 50 F. without rupture.

5. A dilatation at the fossa navicularis in every case.

6. The size of the meatus bears no regular proportion to that of the urethra.

These observations have been made upon healthy urethras, so far as I could discern, and therefore we may conclude that these constrictions and dilatations are normal. Their existence, however, does not preclude the fact that we may have pathological contractions of similar degree in these same localities, or that these same constrictions, unnoticed and unknown, so long as healthy, may become the starting point or protracting factor in intractable affections when once invaded by disease.

As evidence of this, a young man, upon whose brother I had operated for traumatic stricture, asked me, about fourteen months since, to examine him. Curiosity was his only reason, as he had never had any venereal affection or traumatism of the penis. I therefore included his case in the number of normal urethras I was examining for these studies. His urethra measured: Bulb, 36; an inch and a half forward, 32; half an inch farther forward, 34; post. bord. of the fos. nav., 33; fos. nav., 35; meatus, 26.

He had no symptoms of disease, either reflex or inflammatory, and therefore I pronounced his a healthy urethra. Some three months later he contracted a gonorrhœa, which proved very stubborn. After about twelve weeks of treatment I again examined his urethra, and found about the same variations in caliber, allowing for the greater tenderness, except at the point just back of the fossa navicularis, which now measured 31 F., and just back of this the endoscope disclosed a granulating spot about three lines wide and half an inch long. Three weeks' distention, together with mild injections, cured him. This case well illustrates the fact that what is a normal constriction under some circumstances becomes a pathological element under others, and that no absolute rule can be laid down of so many millimetres coarctation at one point and so many at another, constituting a stricture. The subjective and objective symptoms in a given case must have a large influence in our decision as to whether or not a constriction shall be called a stricture. Whatever may have been the merits of the discussion between Dr. Otis and his *confrères* his doctrines have taken such firm hold upon the profession of this country that his urethrometer and urethrotome have had, perhaps, the largest sale of the surgical instruments of the day. No hamlet in this land so poor as not to have some "rising surgeon" with these instruments, making the crooked urethras straight—and, often, the straight penises crooked.

The more conservative men, who have held to the advantages of gradual dilatation, have raised their scales, and are now using 30 to 35 F. sounds where they formerly used 20 to 25 F., and are incising the meatuses which they once stretched.

In evidence of this, compare the scales lately published by Dr. White * with that of Dr. Otis.

CIRCUMFERENCE OF PENIS.	MEASUREMENTS IN MM.	
Inches.	Otis.	White.
3	30	26–28
3¼	32	28–30
3½	34	30–32
3¾	36	32–34
4	38	34–36
4¼–½	40	— —

Are not the differences very slight? Notwithstanding Dr. Otis avowedly disclaimed the uniformity of the urethral caliber, his methods and those of the "gradual dilators" as well lead to the production of a uniform channel. The cutting of a stricture was never alleged by Dr. Otis to effect a cure. It was the persistent, thorough dilatation after the operation that accomplished the result, and it is a matter of small moment whether the natural conformation of the canal is destroyed by cutting and stretching or by stretching alone.

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* *N. Y. Med. Jour.*, April, 1876.

* *University Med. Mag.*, March, 1891.

Sappey, the great French anatomist, describes the urethra as a canal with four contractions and three dilatations. Beginning at the neck of the bladder in a contraction, it is dilated in the prostatic portion; contracting in the membranous portion, it suddenly dilates into the bulbous pouch, which is about an inch and a half long; from this point forward it contracts for the space of an inch and a half to two inches and a half and to the extent of one to three millimetres in circumference; it maintains about this caliber from here outward to within three quarters of an inch of the end, where it dilates again to form the fossa navicularis and ends at the meatus in a sudden, more or less extensive, contraction. These variations are no accidents of evolution or freaks of Nature, neither are the dilatations in one part due to contractions of another. They are natural anatomical conformations, found alike in old and young, clearly designed for a wise purpose and demanding from us careful consideration and conservatism. No less are they necessary to perfect physiological functions than the nozzle is to the fire hose, or the curves in the pipes of our modern sanitary plumbing. That the nozzle may be too small for the hose and pump, or that some portion of the urethra may be disproportionate to the functional action required of it, is conceded; but, that every dilatation in the urethra is a pathological pouch, or every coarctation a stricture, or that, in order to restore one part to its normal condition, we must destroy the anatomical conformation of the remainder of the urethra, I do not believe. The prerogative of the surgeon is limited to the good of his patient. We have no right to apply methods which, even if they succeed in curing the disease, are apt to leave a condition worse than the disease, until we have tried all others, and then only with the full knowledge and consent of our patients.

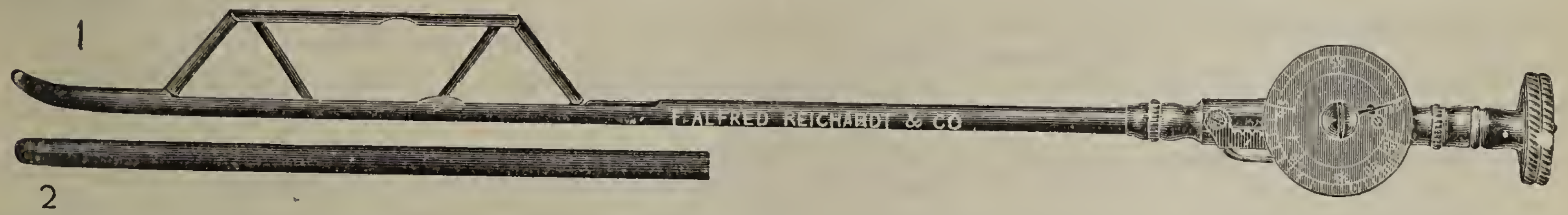
Having practiced internal dilating urethrotomy for eight years and with more than average success, I believe, never having had a death in nearly one hundred and fifty cases, I have become convinced of its dangers—hæmorrhage, shock, urinary fever—and of its inefficiency in strictures of the membranous and prostatic portions of the urethra. Urethral pockets, dribbling of urine, curvature of the penis, loss of sexual power, and artificial hypospadias increase in direct proportion to the thoroughness with which the operation is done. If the operation were always successful in curing the gleet, the risk of these objectionable results might be lightly taken, but it is not. One of the greatest difficulties I found to contend with was that of keeping the urethra dilated up to the size to which I had cut it. The meatus becomes very tender, and it heals and contracts more rapidly than the deeper portions of the urethra, and thus makes the pain of passing a full-sized sound almost unbearable. I dare say there is not one of us who has not seen his patient writhe in agony upon the passage of one of these large sounds through a healing meatus, and, yielding to the feeling of humanity or the necessity of the case, contented himself with a 30 F. where he had used a 34 F. at the operation.

These difficulties led to the reflection that if in dilating urethrotomy it was desirable to cut only the stricture bands, then it should not be necessary to mutilate the entire urethra in order to keep this part dilated till it healed. With this point in view, I devised my urethral dilator (Fig. 1) as an aid to internal urethrotomy, and so used it for a year or more.

But, arguing that, unless every fiber of the stricture was cut, the certainty of this being practically impossible, the process of cure must, after all, largely depend upon the stretching, and that, if it was the stretching which cured, and not the cutting, then the latter was unnecessary; and believing that the absorption of stricture tissue was due to pressure and temporary hyperæmia, set up about the part dilated, as taught by Voillemier and Duplay, I abandoned the cutting process in most cases and began the treatment with extreme dilatation at the strictured spot only. The instrument employed consists of a long steel tube, of twenty millimetres circumference, curved and conical at the end, to facilitate its introduction into the deep urethra. At an inch and a half from the end it is split, somewhat above the center, for the space of two inches, and a mechanism introduced, which is manipulated by a thumb-screw, and separates these two parts absolutely parallel. A rubber cap is fitted over the instrument to a point above the separation, which acts as a cushion for the mucous membrane and prevents pinching when the instrument is closed. A dial plate and hand indicate the amount of dilatation. The instrument is made to dilate laterally, in order that the subpubic attachments may not be strained when dilating the deep urethra.

The special points of interest in the instrument are its parallel separation over a limited space, its powerful mechanism, its applicability to all portions of the urethra, and its protecting rubber cap.

In my first cases I proceeded very cautiously, fearing the instrument might act as a divulsor in the production of shock, urinary fever, etc. Sometimes I would only dilate the stricture one to three mm. at a sitting, but gradually I became bolder, and now I frequently dilate an elastic stricture eight to fifteen mm. in two or three sittings, always testing my patient's urethral irritability by a slight dilatation at first.



The tables which I here present are neither large nor elaborate; they are only intended to illustrate the rapidity with which results are obtained by this method and the class of cases to which it is applicable.

Name.	Diagnosis.	Location and size of stricture.	Normal size of urethra and meatus.	Former treatment.	Size obtained.	Time of treatment.	Result.
1	Chron. gon.; strict. dense, hard, indurated.	2½ in., 26.	Urethra, 35. Meatus, 25.	Not noted.	42.	8 weeks.	Cured.
2	Chron. gon. and strict.	3½ in., 26.	Urethra, 34. Meatus, 26.	No operation.	41.	5 weeks.	Cured.
3	Chron. gon., deep ureth., strict.	2¼ in., 25.	Urethra, 33. Meatus, 26.	....	40–41.	6 weeks.	Cured.
4	Strict., never had urethritis; reflex symptoms.	2½ in., 27.	Urethra, 34. Meatus, 25.	....	38.	6 weeks.	Cured.
5	Chron. gon., strict.	1 in., 22. 3 in., 25.	Urethra, 34. Meatus, 25	....	42.	3 weeks.	Cured.
6	Chron. gon. and strict.	2½ in., 28. 6¼ in., 26.	Urethra, 34. Meatus, 30.	....	40.	9 weeks.	Cured.
7	Neuralgia vesical cervix.	....	Urethra, 34. Meatus, 34.	Perineal section.	44 at neck of bladder.	1 week, 3 dilatations.	Pain relieved.
8	Chron. gon. and stricture.	¾ in., 32.	Urethra, 35. Meatus, 26.	Cut.	42.	3 weeks.	Cured.
9	Reflex irritation of bladder, strict. large caliber.	2½ in., 25. 5 in., 28.	Urethra, 30. Meatus, 26.	....	35.	6 weeks.	Cured.
10	Deep chron. urethritis, tub. strict.	1½–3 in., 26.	Urethra, 33. Meatus, 28.	Cut.	39.	4 weeks.	Discharge and stricture both removed, but discharge afterward returned, I heard.
11	Chron. gon. and strict.; operated on 2 years before.	3 in., 25. 4½ in., 27.	Urethra, 31. Meatus, 26.	Cut.	39.	2 months.	Cured.
12	Deep urethritis, drop in morning, strict.	3 in., 34. 6 in., 28.	Urethra, 37. Meatus, 30.	Cut.	42.	4 months.	Cured.
13	Reflex perineal, deep urethral pain; strict.	3 in., 26. 4 in., 24.	Urethra, 34. Meatus, 26.	....	About 39.	4 weeks.	Cured.
14	Cystitis, deep urethritis, strict.	3¾ in., 28.	Urethra, 34. Meatus, 28.	....	39.	8 weeks.	Stricture removed, but patient's case developed into tubercular kidney.
15 *	Chron. gon. and strict.	3 in., 26.	Urethra, 35. Meatus, 33.	Cut.	40.	9 months.	Stricture removed, but discharge not cured.
16	Chron. gon. and strict.	4 in., 25.	Urethra, 34. Meatus, 31.	Cut by myself 18 mos. ago to 38.	42.	4 weeks.	Cured.
17	Chron. gon., deep strict.	7 in., 32.	Urethra, 35. Meatus, 32.	Cut, etc.	44.	2 weeks.	Reported cured some weeks later.
18	Dysuria; deep ureth. strict.	6½ in., 22. 3½ in., 31.	Urethra, 34. Meatus, 29.	Cut.	32 deep, 40 sup.	1 week, 2 dilatations.	Patient lived out of city, and said he was too well to spare money and time for further treatment.
19	Strict., reflex symptoms.	2¾ in., 29.	Urethra, 34. Meatus, 30.	Cut 3 wks. before.	40.	4 weeks.	Cured.
20	Chron. gon. and strict.	2¼ in., 25.	Urethra, 33. Meatus, 26.	Sounds and injections.	41.	6 weeks.	Cured.
21	Chron. gon., three strictures.	1 in., 22. 2¾ in., 25. 6¾ in., 24.	Urethra, 34. Meatus, 25.	Sounds and injections.	40.	8 weeks.	Cured.
22	Dribbling, perineal neuralgia; no history of gon., but of traumatism; strict.	3 in., 25.	Urethra, 35. Meatus, 27.	None.	34.	5 days, 2 dilatations.	Pain disappeared and dribbling much improved. Patient, a doctor, took instrument home to treat himself.
23	Stricture lately operated on, sore and painful reflex cystic irritation and perineal pains; chron. urethritis.	2¾ in., 29.	Urethra, 34. Meatus, 30. (Had been cut.)	Injections, sounds, internal urethrotomy.	40.	4 weeks.	Cured.
24	No gon. history; dysuria and frequent mict.; enfeebled sexual control; strict.	2 in., 26.	Urethra, 32. Meatus, 25.	None.	38.	6 weeks.	Sexual control only slightly improved. Dysuria and other distressing symptoms entirely cured.
25	Chron. gon. and strict.	1¾ in., 25.	Urethra, 35. Meatus, 26.	Injections, sounds, etc.	39½.	4 weeks.	Patient taken at end of treatment with remittent fever, but urethral symptoms were all gone and have not returned. I hear he is well.
26	Spasmodic elastic strict.	6½ in., filiform only admitted.	Urethra, 36. Meatus, 29.	None elicited.	38.	2 weeks.	Cured.
27	Chron. gleet, strict., and granular urethra.	1⅝ in., 26.	Urethra, 38. Meatus, 28.	Sounds, injections, internal medication.	42.	27 days.	Cured.
28	Chron. gon., strict., granular deep urethra.	1½ in., 29. 7½ in., 28.	Urethra, 37. Meatus, 30.	Internal urethrotomy, meatotomy, sounds, etc.	39.	7 weeks.	Improved; still under treatment.
29	Chron. gon., strict.	1 in., 25.	Urethra, 34. Meatus, 26.	Injec. and internal medication.	35.	18 days.	Discharge cured; urethrometer catches at 33 slightly.
30	Chron. gon., deep urethral strict.	7 in., 22.	Urethra, 36. Meatus, 28.	Sounds and internal urethrotomy.	41.	6 weeks.	Cured.
31	Vesical reflex irritation, strict.	7½ in., 25.	Urethra, 34. Meatus, 24.	Internal med.	36.	2 weeks.	Cured.
32	Chron. deep urethritis, granulation throughout membranous and prostatic urethra.	No strict. positively elicited.	Urethra, 36. Meatus, 28.	Sounds, deep injections.	42.	5 weeks.	Cured.

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* See body of paper.

Name.	Diagnosis.	Location and size of stricture.	Normal size of urethra and meatus.	Former treatment.	Size obtained.	Time of treatment.	Result
33	Dysuria (reflex), irritable, strict. very narrow.	¾ in., 27.	Urethra, 36. Meatus, 26.	Internal med.	36.	2 weeks.	Cured.
34	Chron. urethritis, strict. in deep urethra.	7½ in., 26.	Urethra, 37. Meatus, 30. (Cut.)	Sounds, deep injections.	41.	4 weeks.	Cured.
35	Chron. gon., strict.	4½ in., 24.	Urethra, 36. Meatus, 30. (Cut.)	Internal urethrotomy, sounds, deep injections.	42.	5 weeks.	Cured.

As will be seen from these records, dense, hard, cicatricial strictures of small caliber are not treated by this method, except as an aid to internal urethrotomy. It is essentially applicable to strictures of large caliber, to spasmodic strictures, and to granular ulcerating conditions of the urethra. The average time of treatment in the cases which have been under my care has been less than forty days, which, I am sure, will compare favorably with that under any other method. Moreover, it does not leave any pockets or linear cicatrices, nor does it alter in any way the normal anatomical conformation of the urethra. Not a single case of shock, urinary fever, hæmorrhage, curvature of the penis, dribbling, or any of the objectionable results of internal urethrotomy has been observed in this method.

By the pressure and temporary hyperæmia induced by stretching, I believe a retrograde metamorphosis is set up which lasts not only during the treatment, but for weeks afterward. This fact is exemplified in case No. 23. Having dilated the urethra by as much force as I dared use, and with considerable pain, to 34 F., I was compelled to discontinue the treatment for some four weeks. At the end of this time I was able to dilate the urethra to 38 F., and that, too, at the expense of very much less force and with inconsiderable pain to my patient. The force required is the best guide as to how much distention should be used. Another case illustrating this fact and also the treatment of chronic deep urethral inflammation is No. 30. I quote from my history book:

April 1, 1891.—A man, thirty years old, single, a traveling salesman, has had gonorrhœa several times. He was operated on for stricture of the pendulous urethra three years ago after Otis's method. More or less discharge remained, with bleeding from the urethra upon intercourse. Bulb, 36; 1½ inch, 34; fossa navicularis, 35; meatus, 30. A 23 F. *bougie à boule* shows roughness in the membranous urethra; a 26 F. catches tightly three quarters of an inch back of the triangular ligament, and this is followed by free bleeding. Stretched to 30 F. The endoscope shows large bleeding granulations throughout the membranous urethra.

4th.—No change. Discharge increased. Dilated to 32 F.

7th.—Slightly better. Dilated to 33 and applied equal parts of carbolic acid and tincture of iodine to the granulations.

10th.—Better. Stretched to 34. There is much pain and still bleeding. The application produced vesical irritation.

15th.—Discharge much improved. Dilated to 36. Applied iodine and carbolic acid again.

May 1st.—The vesical irritation after the last application was too great to allow of continuing the treatment. Dilated to 37 F., with less pain and no bleeding.

July 16th.—The patient has been traveling and feels perfectly well. The discharge has entirely ceased, and the bleeding on intercourse. Dilated to 41 F., giving hardly any pain, and had to use little force as compared with former dilatations.

September 1st.—The patient is entirely well. A 31 F. *bougie à boule* catches nowhere except at the triangular ligament and at the meatus.

The fact that strong and prolonged pressure is one of the most effectual cures in granulating ulcers has caused me to apply this method in all such conditions of the urethra for the past fourteen months, and with uniform success. I use the Otis improved urethrometer or Stewart's to locate the coarctations in the canal, and find them less painful than the *bougie à boule* and fully as accurate, notwithstanding it has been said that "no practical surgeon uses them at the present day except in special cases." I examine all patients with the speculum or endoscope, preferably the latter, to discern the condition of the mucous membrane, and when the meatus is too small to admit a 26 F. endoscopic tube I stretch it with the dilator. Reybard has shown that the meatus can be dilated to twice its normal size, and unless it should be maintained that the extent to which I dilate the urethra is excessive and apt to rupture it, I would here once more refer to the table of "distensibility of the urethra" as found by different authors and published by Dr. Weir, in the *New York Medical Journal* for April, 1876. These estimates invariably exceed the highest figures I have given.

When the stricture, granular surface, or ulcer has been located, the dilator is introduced and slowly expanded at the diseased part from two to six millimetres beyond the ascertained caliber, and left there for from five to fifteen minutes. These *séances* are repeated every two to five days, according to the amount of irritation set up, until the diseased part has been dilated to from three to five sizes above the normal caliber of the urethra, as ascertained by the urethrometer. Local applications, through the endoscope or in the form of antiseptic astringent injections, are used in connection with the dilatation, and I invariably prescribe for my patients boric acid, or preferably salol, and oil of sandalwood, combined, in capsules.

The rubber caps should not be used on different patients, for fear of infection—certainly not until they have been taken off and soaked in a 1-to-500 solution of bichloride of mercury. They will be much preserved by taking them off promptly after using the instrument.

If the results thus far attained—viz., thirty-one cures, three marked improvements, and one failure in thirty-five cases—can be maintained without an accident or unfavorable sequence, the method will be, in my hands at least, superior to any I have tried, and its rationale may, I trust, commend it to the members of this society, as it has already done to some of my personal friends who are using this method with equally good success.

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A NEW DISEASE SIMULATING ACROMEGALY.

According to the *Medical Press*, Dr. Pierre Marie, the first to describe the disease that is now by common consent designated as acromegaly, has lately described another new affection of pulmonary origin which presents some superficial resemblances to acromegaly. But it differs from the latter both in character and in causation. Among its salient features are enlargement of the hands and feet, most marked in the distal phalanges, widening and exaggerated ungual curve, and a similar deformity in the larger joints, associated with a variable degree of impairment of movement. These conditions are consequent upon certain pulmonary affections, and are attributed by Dr. Marie to the presence of a special species of pus, to be found either in the pleural cavities or in the bronchial excretion. Pathologically, the joint lesions attack the periphery of the articular surfaces, and are inflammatory, constituting an osteo-periostitis. The medullary contents also undergo active metamorphosis, taking on fatty degeneration as a result, especially in the central zones of the affected structures. Chemical examination reveals the presence of a great excess of magnesium salts and fat. The number of recognized recorded cases is, of course, very small at the present time, but there are without doubt not a few in a modified form that are now under observation in patients having chronic pulmonary disease. Indeed, the hippocratic fingers of consumptives are probably an early manifestation of Dr. Marie's newly recognized disease. In a few instances, it is reported, the cure of a concomitant empyema has been followed by a retrogression of these articular lesions, and the *ablata causa* maxim is the only known indication for treatment that has thus far been formulated.

RUPTURE OF THE GALL-BLADDER.

Mr. Arbuthnot Lane has recorded a case of rupture of the gall-bladder in which he operated with success, in the *Lancet* for May 16th. In this case there was a retention within the peritoneal cavity of a considerable quantity of bile for five weeks. The patient, a lad of eighteen years, was admitted to the hospital in an apparently moribund condition, with the history of peritonitis due to a blow upon the abdomen received five weeks previously. The abdomen was greatly distended and contained some fluid. Laparotomy was immediately performed, as an almost forlorn hope of saving the patient's life. Three gallons of fluid deeply colored with bile were removed. A drain was introduced and maintained in position for a day; after that time, as there was no further escape of fluid, the drain was removed. The patient improved progressively for a fortnight, but at the end of that time there was a renewal of the peritoneal symptoms. A dullness was observed in the hepatic region, which extended down to the umbilicus and encroached upon the right pulmonary region. Six pints of bile were removed by aspiration, and subsequently an incision was made into a pocket apparently formed by the adhesion of the gall-bladder to the abdominal parietes. A drain was again introduced and kept in place for a week; then, no more bile being discharged, it was removed. The patient improved and gained in flesh.

Mr. Lane had been surprised at the tolerance of this lad's abdomen to the presence of a large quantity of bile within its cavity for a period so long as that indicated by the history of the case, possibly as long as five weeks. This experience will give him greater courage in the future when he encounters abnormal conditions of the gall-bladder and bile-ducts, for he has hitherto dreaded the possibly irritating consequences of an escape of bile into the peritoneal cavity, although Dr. Pavy has already made known the fact that dogs and rabbits are not greatly inconvenienced by this kind of accident or experiment. In suitable cases Mr. Lane would prefer the operation of laparotomy with drainage to cholecystectomy, as practiced by Sir Spencer Wells and others.

MINOR PARAGRAPHS.

AN UNUSUAL FORM OF CHANCRE.

In the *Lancet* for September 19th, Dr. E. D. Mapother relates the case of a professional man from India, aged forty-nine and intemperate, who consulted him on January 13th for a chancre which had appeared a week before. About twenty-seven years before he had had chancroids and suppurating buboes, which healed very slowly. The sore was on the dorsum, a third of an inch behind the corona, and there were hard, enlarged glands in each groin. Small doses of blue pill, small inunctions in the groins, and dry lint were ordered. Good progress was made for a fortnight, but then the sore began to extend slowly, and there arose around it, except toward the corona, a thick ridge. This near the frenum was œdematous, but above there was a semi-solid deposit in the areolar tissue of the preputial folds. Many local applications were tried without effect, and iodoform seemed of but little service. On March 9th iodide of potassium was prescribed, together with the mercurial treatment. After ten days the skin over the hardest part of the ridge gave way, and matter similar to that in gummata came out. Improvement followed, but so slowly that it was April 13th before cicatrization was complete. It ulcerated again superficially on the 20th, but finally healed in three weeks. The enlargement of the glands had become absorbed, and no secondaries appeared. The peculiar deposit and the extreme slowness of healing, due probably to the age, habits, and former residence of the patient, seemed to render the case worth recording. A somewhat similar form was described by Fournier in the *Archives générales de médecine* for November, 1867.

THE CAUSES OF MEGRIM.

In the *Edinburgh Medical Journal* for May, Dr. Clouston writes of megrim as a neurosis of development. It is one of the purest of all the developmental neuroses, appearing first in the pre-reproductive and adolescent eras. It rarely appears before the age of seven years, and never begins after that of twenty-five. It has three periods of onset—the first between the ages of seven and thirteen, the second coincident with puberty, and the latest during adolescence. About a third of the cases begin at each of these periods. When it has developed it continues during reproductive life and then usually ceases. Hereditarily it is, like insanity, commonly derived from ancestry that has suffered not from neuroses generally, but from it alone. The most probable theory as to its pathology is that it is an explosive disease resulting from instability in the optic thalamus. As a great sensory ganglion, the thalamus has of necessity a close relation to reproduction. The following pathological facts have been determined with regard to the disease: It is hereditary, and usually from the same sex. It is developmental in character, appearing usually before or at puberty. It bears a close relationship, like all the periodic neuroses, to the normal periodicity of menstruation. Its severity is increased in most cases by disturbed menstruation.

THE TREATMENT OF CHRONIC CONSTIPATION IN CHILDREN.

Certain errors in the treatment of this most troublesome disorder are pointed out by Dr. Cheadle in the *Practitioner* for July. Three devices seem to be most commonly adopted. The administration of more or less active purgatives from time to time, the dose being repeated as often as the bowels become confined; the use of enemata with more or less regularity; and the use of coarse foods and fruit. The chief point of error in these methods lies in the fact that chronic constipation is a recurrent and habitual condition, while the treatment is intermittent and spasmodic. Purgatives thus given lose their effect after a time, frequent stimulation of the bowel rendering it less and less sensitive. Most cases, however, of prolonged and obstinate constipation require drugs in their treatment. The constant daily use of some mild laxative is essential to ultimate success. Treatment, to be effective, must be continuous. Spasmodic, intermittent, and excessive treatment will invariably fail.

PRELIMINARY COURSES FOR MEDICAL STUDENTS.

It is gratifying to observe that several of the colleges have established courses in physics, botany, and zoology as a preliminary to medical study. Among the institutions from which we have seen announcements to this effect are the College of Physicians and Surgeons, of Chicago, and the University of Pennsylvania.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 29, 1891:

DISEASES.	Week ending Sept. 22.		Week ending Sept. 29.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	107	19	62	20
Scarlet fever	58	10	66	5
Cerebro-spinal meningitis	5	5	3	5
Measles	35	6	40	1
Diphtheria	79	24	57	16
Small-pox	1	0	2	0
Eysipelas	2	0	0	0
Varicella	2	0	3	0
Pertussis	0	4	2	2

The Intercontinental American Medical Congress.—The Committee on Permanent Organization of the Intercontinental American Medical Congress will meet at the Lindell Hotel, St. Louis, on October 14th. It is intended at this meeting to (1) adopt a constitution; (2) elect permanent officers, domestic and foreign; (3) select the time and place of meeting. Members of the auxiliary committees of the different States are invited to be present.

A Union Meeting of the District Medical Societies of Northern Ohio.—A Union Meeting of the Northwestern, the Northeastern, and the North Central Ohio Medical Societies will be held at Mansfield on Thursday, Friday, and Saturday, November 5th, 6th, and 7th.

Sir William Mac Cormac gave a clinical lecture in the amphitheatre of Bellevue Hospital on Wednesday of this week, on Dr. Lewis A. Sayre's invitation.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 13 to September 26, 1891:*

The retirement from active service of Colonel Edward P. Vollum, Chief Medical Purveyor, is announced. S. O. 211, A. G. O., September 11, 1891, Washington, D. C.

Crampton, Louis W., Assistant Surgeon, is relieved from duty at Fort Sheridan, Illinois, and ordered for duty at Fort Townsend, Washington, relieving Assistant Surgeon James C. Worthington. Assistant Surgeon Worthington, on being relieved, is ordered to Fort Thomas, Kentucky, for duty at that station, relieving Assistant Surgeon George M. Wells. Assistant Surgeon Wells, on being relieved from temporary duty at Fort Thomas, Kentucky, is ordered to San Carlos Arizona, for duty.

Kean, Jefferson R., Assistant Surgeon, granted leave of absence for three months on surgeon's certificate of disability.

Wells, George M., Assistant Surgeon, relieved from duty at Columbus Barracks, Ohio, and ordered to Fort Thomas, Kentucky, for temporary duty, relieving Assistant Surgeon Henry I. Raymond. Assistant Surgeon Raymond, on being relieved, will report to the commanding officer, Fort Robinson, Nebraska, for duty at that station.

DeWitt, Theodore F., Assistant Surgeon, granted leave of absence for six months on surgeon's certificate of disability.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending September 26, 1891:*

Hoehling, A. A., Medical Inspector. Ordered as member of Medical Examining Board.

Harmon, G. E. H., Surgeon. Ordered to the U. S. Steamer Yorktown.

Boyd, John C., Surgeon. Detached from the U. S. Steamer Yorktown and granted leave.

DuBois, F. L., Medical Director. Detached from Navy Yard, Portsmouth, N. H., and to wait orders.

Ayers, J. G., Surgeon. Detached from U. S. Steamer Wabash and ordered to Navy Yard, Portsmouth, N. H.

Cordeiro, F. J. B., Passed Assistant Surgeon. Ordered to the U. S. Steamer Wabash.

Norton, O. D., Passed Assistant Surgeon. Ordered to the U. S. Steamer Petrel.

Marsteller, E. H., Passed Assistant Surgeon. Detached from the U. S. Steamer Petrel and granted leave.

Hall, John H., Surgeon. Ordered to appear before Retiring Board.

Marsteller, E. H., Passed Assistant Surgeon. Detached from U. S. Steamer Petrel and granted one month's leave.

Norton, O. D., Passed Assistant Surgeon. Detached from special duty at Naval Academy and ordered to the U. S. Steamer Petrel.

Hall, J. H., Surgeon. Detached from Naval Hospital, Chelsea, Mass., and placed on waiting orders.

Bradley, G. P., Surgeon. Ordered to Naval Hospital, Chelsea, Mass.

Gravatt, C. U., Surgeon. Ordered to Naval Hospital, Brooklyn, N. Y.

Gardner, J. F., Passed Assistant Surgeon. Detached from Naval Hospital, New York, and ordered to the Naval Station, New London, Conn.

North, J. H., Assistant Surgeon. Detached from Navy Yard, New York, and to wait orders.

Lung, George A., Assistant Surgeon. Detached from Naval Station, New London, Conn., and ordered to the Navy Yard, New York.

Simons, M. H., Surgeon. Detached from the Enterprise and to hold himself in readiness for sea service.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the six weeks ending September 19, 1891:*

Purviance, George, Surgeon. Granted leave of absence for thirty days. August 22, 1891.

Long, W. H., Surgeon. Granted leave of absence for twenty-two days. August 18, 1891.

Austin, H. W., Surgeon. To proceed to Delaware Breakwater Quarantine Station as Inspector. August 28, 1891. Granted leave of absence for thirty days. September 3, 1891.

Gassaway, J. M., Surgeon. Granted leave of absence for ten days. September 19, 1891.

Stoner, G. W., Surgeon. Granted leave of absence for ten days. August 15, 1891.

Carter, H. R., Passed Assistant Surgeon. To proceed to Cape Charles Quarantine for temporary duty. August 27, 1891.

Wheeler, W. A., Passed Assistant Surgeon. To proceed to Cape Charles Quarantine for temporary duty. August 27, 1891.

Banks, C. E., Passed Assistant Surgeon. Granted leave of absence for eleven days. September 3 and 9, 1891.

Carmichael, D. A., Passed Assistant Surgeon. Leave of absence extended thirty days on account of sickness. September 10, 1891.

Glennan, A. H.. Passed Assistant Surgeon. Granted leave of absence for seven days. August 29, 1891.

Guitéras, G. M., Assistant Surgeon. Relieved from duty at San Francisco, Cal.; to proceed to New Orleans, La., for special duty. September 14, 1891.

Wertenbaker, C. P., Assistant Surgeon. Granted leave of absence for thirty days. September 10, 1891.

Perry, J. C., Assistant Surgeon. To proceed to Evansville, Ind., for temporary duty. September 18, 1891.

Young, G. B., Assistant Surgeon. Granted leave of absence for eight days. August 29, 1891. To proceed to Cairo, Ill., for temporary duty. September 15, 1891.

Houghton, E. R., Assistant Surgeon. To proceed to Vineyard Haven, Mass., for temporary duty. August 29, 1891. Granted leave of absence for sixty days and permission to go abroad. September 18, 1891.

Promotion.

Goodwin, H. T., Assistant Surgeon. Commissioned as Passed Assistant Surgeon, to date from September 24, 1891. September 18, 1891.

Society Meetings for the Coming Week:

Monday, *October 5th:* New York Academy of Sciences; German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Monmouth, N. J., County Medical Society (Freehold).

Tuesday, *October 6th:* Medical Society of Virginia (first day—Lynchburg); American Rhinological Association (first day—Indianapolis); New York Obstetrical Society (private); New York Neurological Society; Elmira Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburgh Medical Association; Medical Societies of the Counties of Broome (annual), Columbia (annual—Hudson), Orange (semi-annual—Goshen), and Schoharie (semi-annual), N. Y.; Medical Association of Northern New York (annual—Malone); Union, N. J., County Medical Society (quarterly); Chittenden, Vt., County Medical Society.

Wednesday, *October 7th:* Medical Society of Virginia (second day); American Rhinological Association (second day); Medical Society of the County of Richmond (Stapleton), N. Y.; Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor); Philadelphia County Medical Society.

Thursday, *October 8th:* Medical Society of Virginia (third day); American Rhinological Association (third day); New York Laryngological Society; New York Academy of Medicine (Section in Pædiatrics); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

Friday, *October 9th:* New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties (anniversary).

Saturday, *October 10th:* Obstetrical Society of Boston (private); Worcester, Mass., North District Medical Society.

Proceedings of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Sixth Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

The President, Dr. William Pepper, of Philadelphia, in the Chair.

The President's Address was read by Dr. Pepper, as follows:

To those who share the feelings of close relationship which the earnest and friendly meetings of our association have fostered among us it will not seem strange that I pause, before proceeding to our scientific work, to speak of our fellow-members who have been taken from us during the past year.

Hosmer Allen Johnson, a founder, trustee, and professor of the Chicago Medical College, and one of our original members, died on February 26, 1891, at the age of sixty-eight years. In the truest sense of the words, he was an ornament to our profession. Dignity and elevation of character, blended with rare charm of presence, conferred additional distinction upon his high scientific and literary attainments. His memory will be cherished not only in the city of his adoption, but by all who had the privilege of his friendship.

James Kingsley Thacher, professor of physiology in the Medical Department of Yale University, and an original member of our association, died on April 20, 1891, at the age of forty-four years. Descended from a line of ancestors eminent for vigor and originality of intellect, Dr Thacher early displayed rare powers as an investigator and thinker. It was not until the age of thirty-three, and after he had won international distinction by his researches in comparative anatomy and physiology, that he began the practice of medicine. He rapidly attained the front rank of the profession, and during the remaining years of his life his frequent contributions to medical literature were of exceptional value as embodying the work of a highly trained scientist dealing with problems of practical medicine. It is difficult to overestimate the loss sustained in the early death of one who so well illustrated the highest type of the physician—the student of Nature as revealed in the functions and disorders of the human body.

Richard Lea MacDonnell, professor of clinical medicine in McGill University, had been a member of our association but a short time when his death occurred, on July 31, 1891, at the sadly early age of thirty-five years. He possessed gifts and ability of a high order as clinician, as writer, and as teacher. He had already accomplished much valuable work, and was so well equipped in purpose, powers, and position that a brilliant career was confidently expected. The association has lost in him one of its most promising members.

Out of our short list of honorary members, Fordyce Barker and Joseph Leidy have gone. Dr. Barker died on May 30, 1891, at the age of seventy-three. His long life seemed all too short for the countless acts of courtesy and charity which he found place for in a career rich in professional and social success. The delightful charm of the man almost threw into shade the remarkable gifts of the physician. His tact and urbanity were perfect, and his hospitality was boundless, so that he was the paragon of hosts. The affectionate solicitude with which he lavished on his patients, rich and poor alike, the resources of his skill, made him one of the most successful and beloved of physicians. His large-hearted sympathy and benevolence made him eager in the organization and service of all movements for the relief of suffering and the elevation of his fellows. The rich treasures of his experience and his strict scientific integrity made his publications valued in all parts of the world. These many honorable distinctions made it eminently proper he should be placed on the list of our honorary members, and in his death we all have to lament the loss of a dear friend and a cherished colleague.

In the death of Joseph Leidy, which occurred on April 30, 1891, at the age of sixty-eight years, the medical profession in America lost its most loved and honored member and American science its most illustrious representative. It makes a difference to the world when such a man passes away. At his birth Nature gave him her *accolade*, and all his life long he was loyal to the holy quest of truth, which is the vow imposed on those whom she invests as her chosen knights. Who can say how much of the marvelous and inexhaustible knowledge of Nature this great man possessed came from the singleness of his life and the purity of his heart? Who can say how many of the miserable shortcomings we all exhibit, even in our best work, spring from the selfishness and the prejudice we allow to mix with it? Leidy never had a theory to support or a purpose to serve. The all-sufficing motive of his life was to learn the truth of Nature and to help others to learn it also. To the last he kept the humility and the simplicity of a little child. No delight could surpass what he felt when new facts were disclosed to him, unless it was that with which he would share with others all he knew. He made great discoveries in various fields of scientific research; but he never seemed to feel any credit was due to him. It merely was that he had chanced first to see that particular fact. It was no achievement of his. Nature had but given him one more little glimpse of her truth. He looked at all natural things with the same fresh, clear-eyed directness. It did not matter by whom, or under what names, or in what surroundings an object was brought before him; he simply saw the thing itself. In this way he detected blunders innumerable and became a general referee to whom all sorts of supposed remarkable discoveries were submitted. The certainty with which he could detect the real nature of the object and the simple, genial way in which he would explain it made irritation impossible. All knew he would treat an inaccurate observation of his own in the same kindly but unsparing fashion. If only the facts were discovered it mattered not to him by whom the discovery was made; and windy battles over claims of priority and selfish struggles to pre-empt fields of investigation were alike impossible to him. More than once he turned aside from lines of research in which he was the pioneer, and where brilliant discoveries were in sight, as soon as he found there were others who longed to win distinction in the same field. I could never see that he enjoyed their triumphs any less than if he himself had won them. Incapable himself of jealousy, or untruth, or disloyalty, he seemed also incapable of thinking evil of others. In all matters of business he would have been readily imposed upon, and his confidence was freely bestowed on all who sought it. But in the estimation of the scientific value of a man's work he was in many lines of research the very highest and the most candid authority. Of course he had no enemies. All were united in respect and affection for him. But only those who lived in close and frequent intercourse with him can tell what elevating and humanizing influences this man of science diffused around him. It helped you to be truthful, simple, and liberal merely to meet him and talk with him. I think few men have been more loved by men than he was; and I know not if there is a higher tribute than these to a man's nature. I shall not attempt to tell what Leidy achieved in many branches of science. The mere fact that his scientific contributions numbered fully eight hundred conveys little idea of the range of subjects they covered, the epoch-making character many of them possessed, or the enormous amount of patient labor bestowed on the thousands of exquisite illustrations they contained. I can not tell you what he was to his colleagues or to his students in the University of Pennsylvania, where for thirty-eight years he filled the chair of anatomy. I feel sure that every colleague in the faculty and every student in the college during that long time was influenced for good by contact with this pure and lovable man. For to Leidy the ever-growing fullness of knowledge brought increasing humility and wonder at the boundless mystery of Nature. And as the close of a profound study of one field of natural history after another added to his sense of the inadequacy of our powers to cope with the problems of creation and life, his feeling of the necessity of a God of Nature strengthened and deepened. Only a few days before his death, as I stood by his bedside, he chanced to notice the flowered pattern of the carpet on the chamber-floor, and said: "How can they work flowers in a carpet? We love flowers! No one would tread on flowers!" And with his heart full of such gentle thoughts he lapsed into peaceful unconsciousness—like a tired child falling asleep in the bosom of the Nature he had loved so long and so well.

It would seem to me an abuse of a rare privilege were I to add to what I have said more than a few but cordial words of welcome. In thanking my colleagues, the members of the Association of American Physicians, for the honor conferred upon me when called to preside over this meeting, I may couple with these thanks a no less hearty congratulation that the recurrence of our congress year not only finds our association instinct with life and in close touch with what is best and most progressive in medical work, but establishes the fact that participation in the congress certainly does not detract from the interest and importance of our own meeting.

No less may I join with our warm and brotherly greeting to the distinguished guests who have accepted our invitation and honor us with their presence the gratifying claim that the many charms of a visit to this country, and the great pleasure to be given and received in the kindly social intercourse of this week, have not been more potent attractions than the prospect of sharing in the rich programme of scientific work arranged for this association and for the congress.

So far at least as medical men are concerned one need no longer repeat the assurance that when they cross the ocean they change not their feelings, but only their horizon. There exists no barrier to our intercourse. The complete solidarity of our science o'ertops all divisions of race or place. The progress and the interpenetration of knowledge first outgrew personal authority, and have now outgrown the limits of national schools of science.

The existence of this society of clinicians and pathologists is by no means a protest against specialism in medical science. Its presence here in this congress is typical of the present attitude of scientific medicine toward specialism. Just as this great meeting would be crippled without the participation of many special societies, so would our own membership be sadly incomplete did it not include many eminent specialists. General medicine and general surgery to-day are federations of specialties, and the general clinician, even of the broadest gauge, in dealing with obscure and complicated cases, acts but as the leading partner in a medical firm.

This is the natural and desirable development of our professional relations. The courts where the issues of our causes are decided are open constantly, and have unlimited jurisdiction. The microscope, the ophthalmoscope, the hæmatometer, the tests of organic chemistry, are witnesses whose presence is always available and whose testimony as to matters of fact is unimpeachable. No cumbrous accumulation of papers and elaborate machinery of procedure hamper our legislation. In the privacy of two or three consulting rooms are determined, with all reasonable certainty and celerity, the issue of causes vastly more vital to the parties interested, and scarcely less so to the community at large, than those which fill columns in the daily press and block the slow wheels of litigation for years. Remedial measures are agreed upon and carried into effect which require such masterful decision, fertility of resource, and energy of action as stamp the great leaders in all the hard-fought battles of the world.

It is a supreme glory of our service that it is restricted to no nation, no dynasty, no place, no class. The monarch of the mightiest empire and the poorest patient in the hospital ward command and receive the same efforts in their behalf.

It is by the combination of the highest specialism, wrought by mutual trust and trained co-operation into absolute unity, that the great triumphs of medicine and surgery are now achieved. The evident truth of this is the basis of the work of our association. The broadening field, the increasing precision of our work; the vast scope of the questions of heredity, of climatic and racial influence, of hygiene and dietetics, of mental and moral regimen, of all that is included in preventive medicine, the great battle-field of the future, and which must be used as far as understood in the struggles of the remedial medicine of to-day, call for a co-operation—not local, but national and international—which shall bring into closer touch, better mutual knowledge, and deeper mutual trust all earnest workers in scientific medicine.

It is, then, with the happy assurance that our work here is in line with the great onward movement of the day that I announce the opening of the sixth annual session of the Association of American Physicians.

The Treatment of Visceral Tuberculosis by Koch's Method.—Dr. F. P. Kinnicut, of New York, opened the discussion by reporting the results of treatment with tuberculin in thirteen cases of pulmonary tuberculosis. Some of this number showed evidence of laryngeal tuberculosis of varying degree. Six were cases of well-marked lupus, five of joint tuberculosis, four of tubercular adenitis, two of bone tuberculosis, two of tubercular prostatitis, one of tubercular epididymitis, and one of rodent ulcer. Eight of the patients were inoculated for the purpose of diagnosis. It was his purpose to deal entirely with the cases of pulmonary and laryngeal tuberculosis. After having these cases under observation for several months his general impressions in regard to tuberculin were first that it had a marked elective affinity for tubercular tissue, and that its value in diagnosis was relative rather than positive. Tuberculin not only did not produce immunity, but in certain cases apparently predisposed tissues contiguous to the seat of the original disease as well as more distant structures to infection. The fever and general constitutional disturbance produced by tuberculin were not only harmful, but probably unessential to its remedial action.

This impression was strengthened by very recent clinical investigations which indicated that tuberculin contained not one but several active principles, and that its activity in producing fever and constitutional disturbance was apparently dependent upon contained substances quite distinct from its remedial principle. Inoculations of minimum strengths, gradually increased, and given at longer intervals than was originally advised, constituted the most efficient method of its use. In regard to pulmonary tuberculosis, its remedial action was apparently restricted to pulmonary disease in its early stage. In such forms of tuberculosis the most careful study of the individual and of the history and physical signs of the disease previous to inoculation did not warrant an opinion of the probable value or degree of reaction or of the ultimate effect of the treatment in any given case. The establishment of constitutional tolerance varied greatly in time in different individuals suffering from apparently similar lesions, and could not be accepted as a basis for prognosis. Local reaction might continue to be developed under treatment in the entire absence of constitutional effect as indicated by the temperature chart. Tuberculin was apparently capable, in exceptional cases of even incipient disease, of exciting pneumonic processes, catarrhal and caseous hepatization, of varying degrees and intensity. Such processes were probably due to the conveyance into other parts of the lung of cheesy material and liberated bacilli. In cases of localized tubercular pleurisy the inflammatory action excited by tuberculin might lead to general infection of the pleura.

The production of hæmoptysis was comparatively rare. It required the greatest watchfulness and entailed much anxiety on the part of the physician. Notwithstanding its degree of harmfulness, he thought tuberculin should not be excluded from the list of remedial agents and that it would yet be found to have a definite place in the therapeusis of the early stages of pulmonary tuberculosis and in ameliorating many of the symptoms of the more advanced disease. The complexity of conditions often present even in the early stages of the disease and the idiosyncrasies of tissue reaction in different individuals were suggested in explanation of the failure of a remedial action in cases apparently similar. The most recent observations gave promise of an enlarged sphere of usefulness in modifications of the original preparation. These impressions must be regarded as open to modification with continued and more extended clinical study.

Dr. Harold C. Ernst, of Boston, gave his experience in the observation of the effects of tuberculin, and reported a number of cases. He said that any benefit that might possibly come from the use of the material under consideration would be for the future to show, as it had not as yet manifested itself, and it was still an open question. The grievous part of the whole matter, he thought, was the too early announcement and application of laboratory results to clinical practice and the inevitable destruction of confidence in future work of a similar character that would result from the failure of the hopes that were entertained in regard to this material. He said that the failure of tuberculin to accomplish what was hoped for from it did not in the least alter the probabilities that it would serve as a guide-post to the investigator for the direction of future work, and that by methods still to be worked out there was to be isolated from the cultures of the various bacteria, or from the results of the activity of these cultures, something that would prove destructive to their hurtful action in the human body.

The author's experience with tuberculin had led him to the following conclusions in regard to its position: 1. It had no diagnostic value that was at all applicable at present to clinical use. 2. The author was unable to demonstrate anything more than a possible temporary beneficial result, and that only in certain cases, from its use in human beings in any form of tuberculous disease. 3. He had no personal experience with its ill effects, but there could be no doubt that these did occur. 4. Its advantages so far were not such that he could be induced to use it again in practice.

There were, however, certain other points that should be well understood before this material, or rather its source, should be given up for investigation. Some of these the author indicated as follows: 1. Tuberculin itself was a very complex substance, and its constituents must be separated and studied before it could be definitely asserted that it did not contain something of value in compelling the healing process in tuberculous lesions. 2. The same thing was indicated even more strongly by the effects that seemed to have shown themselves in the clinical experiments conducted with it; for, while there had not been much actual healing to report, nevertheless such effects had been demonstrated, and it was within the bounds of possibility to believe that by different methods of preparation a material might be obtained from pure cultures of the bacilli that might give more satisfactory results.

Dr. William Osler, of Baltimore, said his observations had been made in the medical wards of the Johns Hopkins Hospital, where inoculations were practiced on twenty-eight patients. Twenty-two of these had pulmonary tuberculosis; three had pleurisy suspected to be tuberculous; in two it was used for diagnostic purposes with negative results; and one case thought to be tuberculous proved to be cancerous adenitis. In giving the injections, small doses were commenced with, and as a rule gradually increased, if the patients had no reaction, in a few instances as high as thirty or forty milligrammes. The cases were selected, so far as physical examination could be the guide, either in the early stage or when the disease was quiescent. The injections were not given in advanced cases. The practical results were, no patients cured. Five cases were decidedly benefited, the good being evident not so much by change in the physical signs as in improvement in the general condition and in weight. In not one of these cases did the bacilli entirely disappear from the sputum. In all, the cough was reduced in urgency. Seventeen of the patients left the hospital distinctly worse for the treatment. One of these had died shortly afterward and another recently. Of seven he had not heard since May 1st. In four the condition was not materially changed, and in four there was slight improvement, noted particularly in the gain in weight. In one case, not counted in the reported list, a patient had a single injection, and in two days after developed signs of extensive pneumonia of the right base, which was at first thought to be tuberculin pneumonia, but the persistent high fever and the progressive and rapid development of consolidation rather favored the view that it was acute pneumonia. The autopsy fully confirmed this view. The bad effects of the treatment were evident in increase in the consolidation and breaking down of the lung tissue, great increase in the fever, progressive weakness, and loss of weight. This was especially marked in several of the cases in which the disease was in an early stage. Of the three pleurisy patients, one gained thirteen pounds and a half, a second five and a half, and a third ten pounds. These were suspected to be tuberculous and there were reactions after the injections, but tubercle bacilli were not found in the expectoration. On the whole, the results of the treatment were disappointing.

(*To be continued.*)

AMERICAN SURGICAL ASSOCIATION.

Twelfth Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

The President, Dr. C. H. Mastin, of Mobile, in the Chair.

The President's Address was for the most part a recapitulation of the work and progress of the association since its organization, a eulogy of its past and present members, and an earnest appeal for some monumental tribute to the memory of Dr. S. D. Gross.

The Present Status of Brain Surgery, based on the Practice of Philadelphia Surgeons.—This was the subject of a paper by Dr. H. A. Agnew. He confined his remarks to an analysis of the results of trephining in cases of epilepsy, traumatic and Jacksonian, intracranial abscess, hæmorrhage, hydrocephalus, cephalalgia, microcephalia, and neoplasms.

Of fifty-seven patients trephined for traumatic epilepsy, forty-one had recovered from the operation, four had died, and, as to the remaining twelve, the result was not given. The most melancholy feature of the proceeding was to be found in the final result. Thirty-two had experienced temporary benefit, nine had obtained no relief, four had passed out of observation, four had been operated upon too recently for an opinion to be formed, four had been cured, and four had died. Careful analysis of the fifty-four cases forced the conclusion that traumatic epilepsy was practically incurable by surgical operation, and that a considerable number of the cases had better be relegated to the domain of pure medicine. Still the doctrine that depressed fractures of the skull without symptoms required no operative interference might be held responsible for many of the unfortunate sequels of head injuries. However slight might be the depression which followed the fracture of the cranium, save in one or two localities, it would encroach enough upon the dural nerves to cause more or less irritation, which, though insignificant at first, and not at all recognizable to the consciousness of the patient, would eventually be propagated to the meninges and subsequently to the cortex and brain ganglia, until finally the paroxysmal explosion occurred. Then, even when the initial lesion was removed, the slowly established habit created by years of excitation would remain an ineradicable legacy. No amount of foresight could determine what happened inside the skull after the receipt of an injury by any inspection of its exterior surface, the physical properties of the two being so very unlike. Whenever, therefore, the profession could accept the doctrine that all depressed fractures of the cranium, however slight might be the depression and entirely irrespective of pressure symptoms, were proper subjects for trephining, then would traumatic epilepsy largely disappear from the list of surgical diseases. It was not improbable, indeed, that, in view of the greatly diminished risk from trephining, the operation would be extended even to cases of simple fracture or fissure of the skull.

In Jacksonian epilepsy the speaker thought that the presumption was against a permanent cure by operation. This view was based not simply on the history of the recorded cases, of which he recounted fourteen, but also on the changes which must necessarily follow the excision of cerebral matter and the pressure of reparatory cicatricial tissue, the ultimate effects of which for evil time alone could determine. Furthermore, we knew that functional substitution was among the properties of the brain, and that when portions had been removed, temporarily suspending its definite action, the work was subsequently taken up by another part of that organ, with most probably the same evil tendencies as that of the lost portion. The most promising cases for operation would, theoretically, be those in which some visible lesion was present as the cause of the disease.

Eighteen cases of trephining for abscess had been collected for his report. Six of the patients had suffered from fracture of the skull, two had syphilitic necrosis of the cranial bones, in one a foreign body had entered the brain, in nine the abscess was due to disease of the middle ear, and in two the skull had received a severe blow without fracture. All the patients had died, life in no instance being prolonged beyond fourteen days. Unfavorable as this record was, it by no means contra-indicated the use of the trephine in cases of suspected intracranial abscess, inasmuch as without surgical interference death must inevitably ensue.

In four out of the five cases reported of trephining for intracranial traumatic hæmorrhage the patients had recovered, not only from the operation, but with restoration of the suspended functions. In cases where the symptoms of compression were general, indicating a widespread extravasation of blood, an operation held out so slight a prospect of relief that the prudent surgeon would hesitate, and most probably withhold his hand from operative measures.

Of the patients, five in number, reported to the speaker as having been treated by trephining for acute or chronic hydrocephalus, all had died. As hydrocephalus was usually due to tubercular disease or to the presence of a morbid growth, notably in the cerebellum, as was true of two of the cases in the list, it was difficult to understand upon what grounds the operation could be undertaken, as it offered no hope of success, but rather tended to hasten the end.

Five cases of trephining for cephalalgia were recited, the operation being undertaken on account of persistent and intractable headache following old injuries of the head. In none of these patients save one was there any evidence of a previous fracture, and in that case there were traces of an old fissure without displacement or depression. The speaker believed the cure to have been complete in every case but one.

Trephining for microcephalus the speaker deprecated. He reported six cases. Out of these there had been four deaths, and the records as to the after condition of the survivors were vague. Nothing exhibited the enthusiasm of modern surgery more than these attempts to coax an undeveloped brain to execute the orderly functions of intelligence. When, however, we considered the marvelous results obtained in the Bicêtre Hospital, in Paris, for the education of idiots and feeble-minded children, he thought it would be much wiser to relegate these unfortunate specimens of humanity to special training schools rather than to the trephine and the rongeur. The debatable cases would be those accompanied by athetosis, in which condition some improvement might be obtained.

Four cases of trephining for brain tumors being the total number he had to report, this was, of course, too few from which to deduce reliable conclusions. Considered from the standpoint of the general literature on this subject, the results of operations for brain tumors could not be deemed brilliant. There must always be in our present state of knowledge a certain degree of uncertainty as to the exact nature, extent, and locality of these neoplasms. Still, he did not want to be understood as placing any obstacle in the path of any one cultivating this department of surgery. The triumphs already achieved by the conjoined labors of the surgeon and the neurologist might be harbingers of still greater successes.

The deductions which the speaker thought might be legitimately drawn from a careful review of the cases presented were as follows: That all fractures of the skull attended with depression, however slight, and entirely irrespective of symptoms, should, in view of the late after-effects, be subjected to the trephine. That trephining for traumatic epilepsy promised only palliation at the best. That trephining for Jacksonian epilepsy was to be regarded as only affording temporary relief. That trephining for abscess, in view of the fact that such cases, left alone, almost invariably terminated fatally, was entirely proper, and that the earlier the operation was done the better. That trephining for intracranial traumatic hæmorrhage was an imperative procedure. That trephining for traumatic headache, medical measures having failed, could be undertaken with every prospect of success. That trephining for hydrocephalus was a useless operation. That trephining for microcephalus, independent of athetosis, conferred no credit upon surgery. That it was more than probable that as our observations multiplied, the sphere of the trephine as a preliminary for the removal of brain tumors would be lessened rather than amplified.

Mr. John Cheyne, of Edinburgh, Scotland, did not take such a gloomy view of the effects of operations for traumatic epilepsy. Perhaps his patients had not yet been given sufficient time. After some years he might be able to speak as the author of the paper had spoken. He shared the opinions expressed as to operations for depressed fracture, and he taught that it was the duty of the surgeon to operate as promptly as in strangulated hernia. He had never seen any danger in doing this, but a great deal from leaving it undone. To leave these cases unexplored because of the immediate absence of symptoms was bad practice. He considered the purification of the head prior to an operation a measure of radical import, and thought that, where possible, three days of antiseptic preparation should be given to the scalp. He would strongly advocate the use of the gouge and mallet instead of the trephine for making the preliminary opening, the enlarging to be done with the rongeur forceps. The trephine was not an instrument which could be used with safety in the hands of the general operator. It was a most important thing to watch these head cases.

Dr. W. W. Keem, of Philadelphia, had been much gratified to hear the ground taken as to depressed fractures, and thought that pupils should be so instructed. As to linear fractures, he was not so sure. He did not think that experience was wide enough to formulate a proposition that they should be operated upon. With his present knowledge, however, he doubted it. But in all cases where there was a suspicion of existing serious injury an exploratory operation should be done.

In the cases of operation for epilepsy the interruption of the fits which always followed gave an opportunity for the very effectual use of the bromides when they might have been almost useless prior to the operation. He took a more encouraging view of the possibilities from operations for brain tumors, and thought that, even if nothing else was accomplished, temporary relief and euthanasia were secured to the patient.

Dr. C. B. Nancrede, of Ann Arbor, Mich., thought that too gloomy a view had been expressed when it was said that no good would accrue in cases of operation for traumatic epilepsy. A condition had probably been set up in the brain, which was not restored to the normal by the simple removal of the piece of bone. The secret probably lay in the after-treatment of these cases. Results which were reported in six weeks as failures might subsequently be recorded as successes.

Mr. T. Bryant, of London, England, said that the author of the paper had laid it down as a practical rule that trephining must be done in every case of depressed fracture of the skull, simple or compound, and, as a rule, he was inclined to indorse this opinion. But there were exceptions to the rule, and he did not think that it would be wise to encourage every practitioner to adopt this rule. All present could recall cases in which there had been depressed bone and no bad results, but these had been cases in which there was neither at the time nor after the injury any symptom of brain complication. He would therefore exclude from operative interference those cases which, after careful investigation, showed total absence of symptoms pointing to temporary or permanent brain injury and in which the depression was only slight. Still, a surgeon ought never under any circumstances to leave a head case unwatched. If, in the course of a few hours or days, there was any evidence of headache or fever or anything suggestive of secondary changes, the case should be taken seriously in hand without waiting for these symptoms to further develop. Therefore he would demur to Dr. Agnew's statement that in every case of fissure of the skull the trephine should be used, for in some of these cases there was nothing to lift. He should be sorry for such an opinion from such an authority to go abroad without qualification.

Dr. Agnew did not think he had been quite understood by all the speakers, and he did not think he could withdraw any statement he had made.

The Surgery of the Spine.—Dr. J. W. White, of Philadelphia, read an exhaustive paper on this subject. The first part of the question considered was that of congenital deformities and a review of the technique of the operative methods in spina bifida. This division of the subject, he said, offered little that was novel, and was only touched upon by him. In reference to the operative treatment of spinal tuberculosis with symptoms of pressure upon the cord, his opinion was that paralysis in Pott's disease was not, as a rule, due to a transverse myelitis or a hopeless degeneration, or to the pressure of the carious or displaced vertebræ, but was, in the majority of cases, the result of an external pachymeningitis which led to the formation of an extradural connective-tissue tumor. Speaking generally, a favorable prognosis might be given in cases of Pott's paralysis in which any existing abscess could be evacuated and extension and a plaster jacket employed, with good hygienic influences. When all these had been tried unsuccessfully, and when the disease was progressing to an unfavorable termination, with more or less complete loss of motion and sensation below the level of the knee and with incontinence of urine and fæces and the development of bed-sores, and especially when symptoms threatened life, resection became entirely justifiable. The prognosis would be favorable in direct proportion to the youth and strength of the patient, the absence of generalized tuberculosis, and the nearness of the lesion to the base of the spine. When the tuberculous process affected the arches, and there was paraplegia, an operation might sometimes be done with the hope not only of freeing the cord, but of staying the progress of the disease. This double indication might also be fulfilled in those cases where, without bone disease, there existed a pachymeningitis or a tuberculous deposit occupying the canal. If the lesion of the bodies of the vertebræ was in the lumbar region, at a point where these bodies were accessible, it might be possible, in certain cases, to expose the cord from the back by the removal of the laminæ with the double object of withdrawing the pressure and taking away the diseased bone and granulations. In tuberculosis of the bodies of the vertebræ and compression of the cord by anterior pachymeningitis we could meet only one indication, that of liberating the cord from pressure. An operation should only be undertaken in grave cases where acute compression, the appearance of respiratory complications, and the rapid development of degenerative processes forced interference, or where the course of a chronic case was steadily toward a fatal termination, although no advanced visceral tuberculous lesions were present.

In reference to operations for neoplasms, the evidence which we now had pointed to extraordinary reparative powers on the part of a cord which had been simply suffering from compression, and to an almost equally remarkable tolerance of operative interference. In a general way, it was safe to say that a diagnosis of a non-malignant neoplasm carried with it a reasonably favorable prognosis, which was strengthened if, in addition, the tumor was thought to be extra-medullary. The author had, therefore, concluded that every case of focal spinal lesion thought to depend on a spinal tumor, and not a malignant and generalized disease, should be regarded as amenable to operative interference no matter how marked the symptoms of pressure might be or how long continued. Upon the question of operative interference with the spinal cord after traumatism, he thought that some of the objections urged against it—such as hæmorrhage, absolute destruction of the cord, pressure from inaccessible fragments of bone, and so on—were shown to be unsupported. Other objections were largely due to a well-founded dread of consecutive inflammation, suppuration, and pyæmia. The result of recent operative interference in properly selected cases of fracture of the spine were encouraging, and should lead to the more frequent employment of resection of the posterior arches and laminæ: (*a*) in all cases in which depression of those portions, either from fracture or from dislocation, was obvious; (*b*) in some cases in which, after fracture, rapidly progressive degenerative changes manifested themselves; (*c*) in all cases in which there was compression of the cauda equina from any cause, whether from anterior or posterior fracture or from cicatricial tissue; (*d*) in the presence of characteristic symptoms of spinal hæmorrhage, intramedullary or extramedullary. An operation was contra-indicated by a history of such severe crushing force as would be likely to cause disorganization of the cord. The question which would remain without satisfactory answer previous to an operation would usually be that of the extent of damage done to the cord and the possibility of its taking on reparative action. As to these, the safest rule was that, if, after the lapse of six or ten weeks, there was incontinence of urine, with cystitis, and especially if there was also a development and spreading of bed-sores, but little was to be hoped for from the unaided efforts of Nature. If, however, these symptoms were absent, and if there was the least improvement in sensation or motion, it would be proper for the surgeon to delay operative interference still longer.

Dr. H. H. Mudd, of St. Louis, thought that in the case of spinal injury by fracture any relief or recovery which might occur would take place promptly, and that this was an important clinical fact. It was better to wait for this point to be reached. If the process of improvement, once begun, became arrested, then the question of an operation might be considered. He demurred to the propriety of operating during the period of shock following these injuries when the actual condition to be relieved was a very doubtful one. But, on the other hand, if the indication of pressure was clear from the beginning, it was better to operate promptly without regard to the shock.

Dr. J. B. Roberts, of Philadelphia, said he still took the ground that injuries and diseases of the spine should be treated on the same general principles as injuries within the cranial cavity. It must, however, be remembered that many of these cases of Pott's paralysis, motor paralyses of the lower extremities, improved in time under ordinary remedies. It had recently been proposed to wire the spinous processes together for the purpose of preventing the curvature, and he thought the suggestion a good one.

Dr. J. J. Putnam, of Boston, did not think that the possibility of inflammatory processes being set up by operative interference in these cases had been considered as fully as it deserved. He had been in correspondence with Mr. Horsley on this subject, and that gentleman had told him of a recent case in which an operation had been followed by inflammation, and had expressed the opinion that this was a point to be considered.

The Treatment of Tuberculous Bones and Joints by Parenchymatous and Intra-articular Injections.—Dr. N. Senn, of Milwaukee, in a brief address embodying the substance of a paper on the subject, said that every surgeon was only too painfully aware of the too common results of all operative treatment in these conditions. They all recognized now the fact, brought before the profession years ago by König, that tuberculosis affecting the joints or bones was a peripheral manifestation of tuberculosis somewhere else in the body, and hence only one of the manifestations of general infection. This would explain the failure of so many of the radical measures of treatment. He was therefore anxious to call attention to a bloodless and effective method of dealing with these formidable affections and the possibility of accomplishing more desirable results. He employed successfully two agents—iodoform and balsam of Peru. Iodoform especially fulfilled the physiological indications. The beautiful experiments recently made at the French Congress on Tuberculosis had shown its power as a tissue stimulant, and proved that it was capable of effecting the removal of the primary cause of the local trouble and of substituting for processes of destruction those of repair. The result of the speaker's work in this direction could, he said, be summed up in the following conclusions:

1. Parenchymatous and intra-articular injections of safe antibacillary substances were indicated in all subcutaneous tubercular lesions of bones and joints accessible to this treatment.

2. Of all substances thus far employed in this method of treatment, iodoform had yielded the best results.

3. The curative property of iodoform in the treatment of local tuberculosis was due to its antibacillary effect and its stimulating action on the healthy tissues adjacent to the tubercular product.

4. A ten-per-cent. emulsion in glycerin or pure olive oil was the best form in which this remedy could be administered subcutaneously.

5. The ethereal solution should never be employed, as it was apt to cause necrosis of the tissues overlying the abscess, or iodoform intoxication.

6. Tubercular abscesses and joints containing synovial fluid or tubercular pus should always be washed out thoroughly with a three-to-five-per-cent. solution of boric acid before the injection was made.

7. The injections should be made at intervals of one or two weeks, and their use persisted in until the indications pointed to the cessation of tubercular inflammation and the substitution for it of a satisfactory process of repair, or until the result of this treatment had shown its inefficacy and indications presented themselves of the necessity of resorting to operative interference.

8. If the treatment promised to be successful, symptoms pointing to improvement manifested themselves not later than after the second or third injection.

9. In tubercular empyema of joints and tubercular abscess, gradual diminution of the contents of the joint or abscess at each successive tapping, lessening of the solid contents of the fluid, and increase of its viscidity were the conditions which indicated unerringly that the injections were proving useful, and that, in all probability, a cure would result from their further use.

10. Moderate use of the limb was compatible with this method of treatment, provided the disease had not resulted in deformities which would be aggravated by further use of the limb. In such cases correction of the deformity should be postponed until the primary joint affection had been cured by the injections.

11. Parenchymatous and intra-articular medication with antibacillary material had yielded the best results in tubercular spondylitis attended by abscess formation and tuberculosis of the knee and wrist joints.

12. This treatment might prove successful in primary osseous tuberculosis followed by involvement of the joint, provided the osseous foci were small.

13. Extensive sequestra of articular ends with secondary tubercular synovitis always required resection, but preliminary treatment with iodoform injections into the affected joints constituted a valuable preparation for the operation and added to the certainty of a favorable result.

14. In open tubercular affections of joints, incision, scraping, disinfection, iodoformization, iodoform-gauze tampon, suturing, and subsequent injections of iodoform emulsion were advised, and yielded excellent results. They should be employed in all cases in which a more formidable operation could be avoided.

15. Balsam of Peru ranked next to iodoform in the treatment of tubercular affections of bones and joints, and, if the latter remedy, for any reason, could not be employed, or had failed in effecting the desired result, it should be given a fair trial, if operative treatment was not urgently indicated.

Aseptic and Antiseptic Details in Operative Surgery.—Dr. A. G. Gerster, of New York, read a paper on this subject, in the course of which he stigmatized as absurd the most conscientious adherence on the part of operators to the scientific requirements of aseptic and antiseptic surgery so long as the operators were not conscious of, and able to overcome, personal habits and tricks calculated to render such precautions abortive. The speaker then went over the whole ground of the subject, giving with the most careful exactness the methods and processes observed in his own operative work. The whole tenor of his remarks went to show that he was inclined to place more reliance on the use of what are known as the mechanical aids in securing good results in wounds rather than on the employment of chemical substances. While he by no means ignored the value of antisepsis, he certainly believed that asepsis would, as a rule, meet the indications. For example, if one had to deal with an abscess, he thought that free incision, evacuation of the pus, the placing of a proper drainage-tube, and so on, would prove of more immediate benefit than all germicidal measures of a chemical nature.

Dr. J. W. White, of Philadelphia, thought that the practice of asepsis should be confined to wounds which might be assumed to be absolutely sterile and from which no discharge was to be expected. He preferred in any case to make use of some chemical agent. While he entirely appreciated the necessity of proper personal precautions on the part of the surgeon, he saw no good grounds for employing only the so-called mechanical means and setting aside the use of the weaker chemical solutions which had come into use in the present day.

Dr. J. Ransohoff, of Cincinnati, questioned the possibility of rendering the surfaces to be operated upon aseptic in all instances. In a recent case at his hospital, of injury to an artisan's hand, in which perhaps more than usual effort had been made to sterilize everything, the speaker had been disappointed to find the wound occupied by maggots in comparatively few hours. He thought that he had learned that the best way to treat such wounds, where it was impossible to secure cleanliness as a preliminary, was by hot-water immersion. The Esmarch bandage and strap he had discarded long ago and had substituted the sterilized linen bandage. He believed that the Esmarch bandage prevented primary union. He believed in securing immunity from the infection of wounds through the air by the use of collodion dressings. He applied strips of iodoform gauze steeped in collodion, superimposing them until complete protection from atmospheric invasion was secured. He advocated this method strongly.

Dr. Gerster reminded his hearers that only a few years ago it had been the custom to clear out a blood clot at any hazard, lest harm should come to a wound from its presence. Now the opposite idea prevailed. He did not believe that the Esmarch bandage was responsible for any failure on the part of wounds to do well, but a failure on the part of the surgeon to render everything aseptic. Personal cleanliness should never be left out of the equation. Those who taught the principles of modern surgery should be careful not to go too far in advance of the rest of the profession. At least, while pointing out the advantages of advanced methods, they should not fail to warn those who had not the means at command to carry these out in their integrity to work along the old lines with the higher methods as the objective point.

(*To be continued.*)

Book Notices.

The Mother's Hand-book: A Practical Treatise on the Management of Children in Health and Disease, with an Appendix containing Articles on Diseases and Accidents that may suddenly happen to Grown Persons. By Levin G. Woollen, M. D. Richmond: Everett Woddy Co., 1891. Pp. 419.

This book contains much excellent advice and many things which a mother should know. Like most works of the kind, however, it makes the fatal error of telling too much. It does not, for example, seem necessary to inform a mother that in typhoid fever "Peyer's glands, situated in the small intestine, are swollen and ulcerated. The associated mesenteric glands are also involved." The first page, devoted to the management of whooping-cough, is excellent, but no good reason can be offered for adding instructions for the administration of bromide of potassium, opium, chloral, and alum. We regret to say that in our experience mothers are not improved by advanced education in works of this class. They undertake the treatment of the most serious diseases with the utmost confidence, and are full of erroneous ideas, yet wise in their own conceit and overconfident in their own judgment. The great error in this book lies in failure to discriminate between the duties of the nurse and those of the physician.

New Inventions, etc.

THE POLYCLINIC OPHTHALMOSCOPE.

At a meeting of the Philadelphia County Medical Society, held on September 9th, Dr. Edward Jackson read the following paper on an ophthalmoscope for general use:

It would be a great gain to both doctors and patients if a much larger proportion of those who class themselves as general practitioners were able, when the need for it arose, to use the ophthalmoscope. One who has no practical experience with it can not even properly appreciate what he reads or hears of ophthalmoscopic appearances. And there are in the aggregate many cases in which the progress of general disease could be far more intelligently followed by its routine use, without entering upon debatable ground or attempting to use symptoms of doubtful significance.

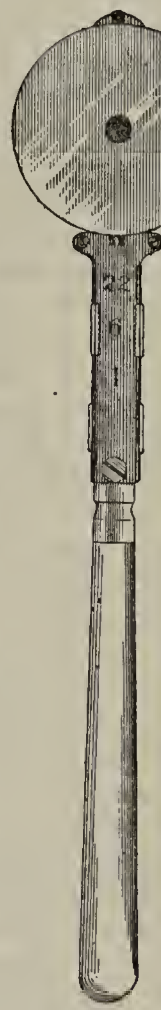
With the ophthalmoscope, as with other instruments, the cheap instrument is very apt to lack certain important features, and the costly instrument is mainly confined to the possession of those who mean to use it a good deal. It took many years to adapt the microscope to the needs of clinical work, to rid it of mechanical stages and other mechanical nuisances, and perfect its really essential parts. And the ophthalmoscope must pass through a similar pruning and adaptation before its use can be truly popular and common in the profession. For some years I have been working at this problem, and herewith present my results.

The ophthalmoscope for general use must: First, be one in which the difficulties of using the instrument are as far as possible overcome. Second, be one that will be as satisfactory as any of the best instruments for any case that is likely to be encountered. Third, be cheap. For this one I have no hesitation in maintaining that with it the fundus of the eye can be seen as readily as with any ophthalmoscope heretofore made; for all practical purposes as a refraction ophthalmoscope, its lens series is complete; it can be bought for eight dollars.

It is easy to see through, because the mirror, which is circular, 30 mm. in diameter, tilts each way to the best angle, at about 25° or 30°; it has a shorter canal and wider lenses than have most first-class refraction ophthalmoscopes; each lens is retained in exact position by a spring stop; and all the lenses or combinations of lenses are available without taking the instrument from the eye.

The lens series is furnished by combinations of six lenses in two slides, and consists of convex 1, 2, 3, 4, 6, and 12 dioptres; concave 1, 2, 4, 6, 10, and 22 dioptres. To appreciate this series one must bear in mind the degrees of ametropia that are commonly encountered in practice. Among 4,000 eyes, the statistics of which I have published in the *Transactions of the American Ophthalmological Society* for 1889, only one eye had hyperopia of 13 dioptres, and only one eye had myopia of 23 dioptres.

The series does not contain half-dioptres, which are given in all the larger refraction ophthalmoscopes; but a very prominent ophthalmologist has recently said that he had had the half-dioptre lenses taken out of his large instrument (Noyes's modification of Loring's) as comparatively worthless. Under especially favorable conditions there are a few ophthalmoscopists who have constant and extensive practice with the instrument who can, I believe, measure refraction with a little more exactness with half-dioptre lenses than they could with only whole-dioptre intervals. But the ophthalmoscopists that can do this are comparatively few, the cases in which they can do it are few, and the practical value of doing it is utterly insignificant. For those who are not in special practice half dioptre intervals are always a delusion and snare, a hindrance, a cause of inaccuracy. They are, therefore, discarded.



Although the statistics above referred to show that in but one eye in forty of those encountered in practice is the degree of ametropia over 6 dioptres, to one not very familiar with the properties of lenses the intervals between the stronger lenses of this series may seem too great. Such must be reminded that the effect of every intermediate lens strength may be obtained by slightly varying the distance of the lens and instrument from the patient's eye. Thus the convex 6-dioptre lens acts as such only when placed against the eye; by drawing it back less than three inches it is made to act as a 12-dioptre lens, and within that space will correct any intermediate amount of hyperopia. By withdrawing the 12-dioptre convex lens a little over one inch, it takes the place of a 20-dioptre lens. On the other hand, by withdrawing the concave 22-dioptre lens a little over two inches, its effect is diminished to 10 dioptres, and in that space every intermediate strength is reproduced. In the same way the withdrawal of the 10-dioptre concave lens to the same distance gives us the 6-dioptre effect.

When this is remembered it is readily seen that any measurement of refraction by strong lenses is utterly untrustworthy unless the distance of the lens from the eye is taken into account; and, if it is taken into account, any additional intermediate lenses are quite unnecessary. The above series is sufficient for the direct method in all cases except the very highest myopia, for which the expert ophthalmoscopist is apt to resort to the indirect method as more satisfactory.

To one accustomed to using a disc ophthalmoscope the arrangement of lenses as here in slides will at first seem awkward and confusing, but to one who begins with this instrument, or who has already used an instrument in which the lenses are so placed, it is especially convenient. The convex lenses are all in the back slide, the concaves in the front. One can be used alone, or both slides can be moved at once by the tip of the same forefinger, according to the lens required.

In the focus of the mirror, the size of the sight hole, the blacking of it, the proportioning of the instrument, and its mechanical execution, it is to equal the best ophthalmoscopes now used. It is made by Mr. D. V. Brown, of Philadelphia.

Since this is not my first attempt at the modification of the ophthalmoscope, and another instrument has my name associated with it, perhaps it will prevent confusion if I exercise the right of naming this. And with the idea of giving it a name that shall by a single word indicate the idea of its design for general use, I shall call it the polyclinic ophthalmoscope.

Miscellany.

The Medical Society of Virginia will hold its twenty-second annual meeting in Lynchburg on Tuesday, Wednesday, and Thursday, the 6th, 7th, and 8th, and probably a part of Friday, the 9th inst., under the presidency of Dr. William W. Parker, of Richmond. The first day's sessions will be devoted to business matters. In the evening an address to the public and the profession, on Medical Education as it was, as it is, and as it should be, will be given by Dr. Charles M. Blackford, of Lynchburg. On Wednesday morning the president will deliver the annual address. A general discussion on Acute and Chronic Dysentery will then be called, to be opened with a paper by the leader, Dr. P. B. Green, of Wytheville. Dr. W. J. Crittenden, of Unionville, will follow with a paper having the same title. Dr. Bedford Brown, of Alexandria, will follow with a paper on Dysentery viewed as a Septic Disease and treated by Antiseptics. The meeting at night will be called to order at 8 P. M. Reports on advances in the respective departments of medicine and surgery will be called for in the following order and continued as the order of business through Thursday, or until completed: Anatomy and Physiology: Dr. Paul B. Barringer, of University of Virginia, reporter. Chemistry, Pharmacy, Materia Medica, and Therapeutics: Dr. Benjamin Harrison, of Richmond, reporter. In this section the following papers will be read: The Place of the Turkish Bath in the Treatment of Disease, by Dr. Charles H. Shepard, of Brooklyn, N. Y.; Pharmacy and its Practical Relation to the Profession, by Dr. S. J. Baker, of Bedford City. Obstetrics and Diseases of Women and Children: Dr. Herbert M. Nash, of Norfolk, reporter. In this section the following papers will be read: Puerperal Eclampsia; its Ætiology and Treatment, by Dr. J. T. Graham, of Wytheville; The Ætiology and Pathology of Puerperal Inflammations, illustrated with Specimens, by Dr. Thomas A. Ashby, of Baltimore; Retro-displacements of the Uterus, by Dr. H. P. C. Wilson, of Baltimore; The Recognition of Operative Cases in Gynæcology by the General Practitioner, by Dr. Joseph Hoffman, of Philadelphia; Remarks on Salpingitis and Peritonitis the Result of Gonorrhœal Infection, by Dr. George T. Harrison, of New York. Practice of Medicine: Dr. Lewis E. Harvie, of Danville, Va., reporter. In this section the following papers will be read: The Importance of the Microscope to the General Practitioner as an Aid to Diagnosis and Correct Medical Treatment, with some Demonstrations in Bacteriology, by Dr. James E. Reeves, of Chattanooga, Tenn.; Hæmorrhoids and their Treatment, by Dr. J. N. Upshur, of Richmond; The Symptomatology and Treatment of the Chronic Forms of Nephritis, by Dr. William C. Dabney, of the University of Virginia. Surgery: Dr. Thomas M. Bowyer, moved to Sioux Falls, S. Dak., reporter. In this section the following papers will be read: The Present Aspect of Cerebral Surgery, by Dr. Landon Carter Gray, of New York; Perineal Operations, by Dr. Joseph Price, of Philadelphia; Concussion of the Lungs, by Dr. B. A. Watson, of Jersey City; A Successful Myomectomy for Parasitic Tumor, by Dr. I. S. Stone, of Washington, D. C.; A Plea for Closer Study of the Principles of Surgery by the General Practitioner, by Dr. G. B. Johnston, of Richmond; a paper on some subject connected with orthopædic surgery, by Dr. A. M. Phelps, of New York; The Treatment of Goître by Electrolysis, by Dr. Charles M. Shields, of Richmond. Ophthalmology, Otology, and Laryngology: Dr. J. Herbert Claiborne, Jr., of New York, reporter. Dr. Claiborne will report on ophthalmology. Dr. John Dunn, of Richmond, has been appointed by the president, by request, to report on otology and laryngology. In this section the following papers will be read: Ophthalmology in Ancient Egypt, by Dr. W. H. Baker, of Lynchburg; Some Personal Observations on Cataract Operations, by Dr. A. W. Calhoun, of Atlanta; Mistaken Impressions about so-called Nasal Catarrh, by Dr. Joseph A. White, of Richmond; Some Suggestions about Cataract Operations, by Dr. Joseph A. White, of Richmond. Neurology and Psychology: Dr. William F. Drewry, of Petersburg, reporter. In this section the following paper will be read: Hereditary Chorea, by Dr. Wharton Sinkler, of Philadelphia. Hygiene and Public Health: Dr. W. T. Oppenheimer, of Richmond, reporter. In this section the following papers will be read: The Drink Problem from a Medical Point of View, by Dr. T. D. Crothers, of Hartford, Conn.; The Drink Problem from a Medical Point of View, by Dr. Frederick Horner, of Marshall; What is to be done with our Criminal Lunatics? by Dr. J. T. Graham, of Wytheville.

The New York Academy of Medicine.—At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 8th inst., Dr. R. W. Taylor will read a Report of some Interesting Cases of Syphilis, and Dr. Samuel Alexander will read An Observation upon the Treatment of Epididymitis.

At the next meeting of the Section in General Surgery, on Monday evening, the 12th inst., Dr. E. M. Mosher will present A Critical Study of the Biceps Muscle as related to Diseases in and around the Knee Joint.

Olive Oil in the Treatment of Gall-stone Colic.—A collective investigation of this subject has been made by the Therapeutic Section of the Philadelphia Polyclinic Medical Society, and at a meeting of the society held on September 9th, the chairman of the committee having the investigation in charge, Dr. Thomas J. Mays, read a report from which we extract the following:

The subject of the action of sweet oil in the treatment of biliary colic and catarrh of the hepatic passages has recently been warmly discussed. There are many who regard this agent as being very much overrated, while many others believe that it has a very beneficial influence on this disease. In view of the divided opinions on, and the importance of, this matter, the Therapeutic Section of the Philadelphia Polyclinic Medical Society has, as a part of its scientific work, undertaken a special collective investigation concerning the clinical value of this drug in gall-stone colic. With this end in view, the undersigned committee was appointed, and directed to send a number of circulars to the members of the profession, of which the following is a copy:

"Sex and age of patient? Seat of pain? Jaundice? Previous attacks? Did you test any other remedy, and with what results? Result of treatment with olive oil. Remarks."

To these circulars nineteen replies were received, and thirty-seven cases of gall-stone colic treated with olive oil were reported. To these members of the profession the warmest thanks of this committee are due for the promptitude with which they responded. Additionally the committee imposed the task upon itself to collect as far as possible all the previously reported cases of biliary colic which were treated according to this method, and succeeded in gathering records of seventeen cases, making altogether a list of fifty-four cases, a condensed history of which is presented in the following table:

No.	Sex and age.	Seat of pain.	Jaundice.	Previous attacks.	Use of other remedies, and results obtained.	Results obtained from the use of sweet oil.	Remarks.	Name and address of observer.
1	F. 40	Right hypochondrium.	Yes.	Three or four.	None.	Six ounces taken in 3 hours. Relief in 24 hours.	No recurrence for more than 3 years, up to time of report.	H. T. Bahnson, Salem, N. C.
2	M. 50	Right hypochondrium.	Yes.	A great many.	Antipyrine hypodermically, with temporary relief.	One pint taken in 2 hours; complete relief.	No return for more than 2 years.	H. T. Bahnson, Salem, N. C.
3	F. 65	Right hypochondrium.	Yes.	Five or six.	None.	Half a pint taken in 4 hours. Relief in 12 hours.	No return for more than 3 years. In two other cases the single large dose produced relief, but failed to prevent a recurrence of attacks.	H. T. Bahnson, Salem, N. C.
4	M. 46	Right hypochondrium.	Yes.	Three.	Chelidonium and dioscorea gave some relief.	Quantity of oil given not stated. Remained well so long as he took it.	Used it in other cases of biliary troubles, and with good success.	G. R. Fortiner, Camden, N. J.
5	M. 34	Right hypochondrium.	Yes.	No.	Chelidonium, without relief.	Quantity of oil given not stated. Administered it for 10 days, when patient died.	Post-mortem investigation showed complete adhesive obstruction of bile ducts. Patient received a blow in hepatic region some time before.	G. R. Fortiner, Camden, N. J.
6	F. 28	Gastric region.	Yes.	Eight or ten.	Sodium phosphate, without benefit.	One pint at a single dose. Complete relief.	No recurrence within a year.	J. J. Cox, High Point, N. C.
7	F. 49	Epigastrium.	Yes.	Six.	Sodium phosphate, with some benefit.	Took the oil for 4 weeks. Dose not stated.	No recurrence; general condition much improved.	G. H. Franklin, Hightstown, N.J.
8	M. 67	Epigastrium.	Yes.	Twelve.	Sodium phosphate, after which a severe attack became less frequent.	Continued oil for 6 weeks. Dose not given.	No recurrence; improvement after oil surprising.	G. H. Franklin, Hightstown, N. J.
9	M. 45	Right hypochondrium.	No.	One a week for 3 mos.	None.	Took the oil for 4 weeks. Dose not given.	One light attack since he began the oil.	G. H. Franklin, Hightstown, N.J.
10	M. 31	Right hypochondrium.	Yes.	Once every 3 wks. during 14 yrs.	Morphine and anæsthetics; temporary abatement.	Dose of oil not stated. Free from attacks for 11 months.	Her previous sufferings were intense, requiring large doses of narcotics.	A. B. Gloninger, Lebanon, Pa.
11	F. 35	Right hypochondrium.	Yes.	Uncertain.	None.	Dessertspoonful of oil every 3 hours. Relieved after second dose.	History of malaria; liver and spleen enlarged.	E. Lawney, Denver, Col.
12	M. 10	Right hypochondrium.	Yes.	One 5 yrs. before.	None.	Dessertspoonful of oil. Pain relieved at once.	Also gave ammon. chloride, gr. iij, and calomel $\frac{1}{32}$ gr. t. i. d.	E. Lawney Denver, Col.
13	F. 51	Hepatic and gastric region.	Yes.	No.	Yes; nature of same not mentioned.	Daily for 2 days gave 8 oz. of oil. No relief.	Patient died.	E. P. Bernardy, Philadelphia, Pa.
14	F. 72	Region of gall-bladder.	Yes.	No.	Yes; nature of same not mentioned. No benefit.	Nine ounces of oil for 10 days without positive improvement.	Oil caused numerous alvine discharges, lightened the color of skin, and seemed to reduce size of gall-bladder.	E. P. Bernardy, Philadelphia, Pa.
15	M. 40	Right hypochondrium.	Yes.	Several, but none for 5 years.	Dioscorea, morphine, and atropine, with some relief.	Dessertspoonful every half hour with the most marked relief.	Regulated diet, and gave sodium phosphate, etc.	Theo. G. Davis, Bridgeton, N. J.
16	F. 30	Over abdomen.	Yes.	One, possibly two.	Calomel, sod. bicarb. and morphine, slight relief.	Dessertspoonful of oil every 3 hours; complete relief after second dose.	Stools contained concretions.	E. H. Bidwell, Vineland, N.J.
17	F. 55	Right hypogastrium.	Yes.	Yes.	Morphine and atropine hypodermically, with what results not stated.	Gave 6 ounces of oil, and relief came in an hour. Following day slight attack; 10 ounces. No recurrence.	The intense vomiting from which she suffered ceased after the oil was taken.	Ch. Pottberg, Philadelphia.
18	M. 40	Right hypochondrium.	Yes.	Several.	Silver nitrate, regulation of diet, and water, with good results.	Dose of oil not stated. Negative results.	Examination of fæces after oil showed contents of soapy concretions.	J. Daland.
19	M. 50	Right side of abdomen.	Yes.	At least two.	Chloroform inhalation and sodium bromide; did not obtain decided relief until oil was taken.	Relieved after taking 3 doses (size not stated) of oil.	The oil appeared to relieve him, but he may also have been helped by the chloroform.	
20	M. 46	Over gall-bladder on pressure.	Yes.	Two.	Not stated.	Ten hours after taking 1 quart of oil in divided doses, 2 large gall-stones discharged in the stools. Steady improvement.	Bowels had not been moved for 4 days before the oil was taken. Singultus existed for 12 hours before bowels moved.	A. F. Magruder, U. S. N., Wash., D. C.
21	M. 52	Over gall-bladder.	Yes.	For y'rs at intervals of from 4 to 6 months.	Nature of, not stated; temporary relief.	Half-ounce doses of oil every 5 hours for about a month before report was made.	Too early to judge the effects of oil. General health better than for 2 months.	J. D. Dewitt.
22	F. 40	Right hypochondrium.	Yes.	One about 2 months before.	Morphine, quinine, atropine, calomel, etc. Not the prompt relief obtained with the oil.	Dessertspoonful of oil every 4 hours. Improvement at once.	No recurrence so far as known. Gall-bladder diminished in size.	Thos. J. Mays, Philadelphia.
23	F. 45	Right hypochondrium.	Yes.	Periodically for a number of y'rs.	Morphine and atropine hypodermically gave slight temporary relief.	Dessertspoonful of oil every 3 hours, with decided relief.	No attack since, so far as known.	Thos. J. Mays, Philadelphia.

No.	Sex and age.	Seat of pain.	Jaundice.	Previous attacks.	Use of other remedies, and results obtained.	Results obtained from the use of sweet oil.	Remarks.	Name and address of observer.
24	M. 20	Not known.	Yes.	During previous 3 mos.	No.	Dessertspoonful of oil 3 times a day, with prompt relief.	No return, so far as can be learned.	Thos. J. Mays, Philadelphia.
25	M. 27	Right hypochondrium.	Yes.	Periodical during previous year.	Not by observer.	Dessertspoonful of oil 4 times a day, with gradual relief.	No recurrence.	Thos. J. Mays, Philadelphia.
26	M. 67	Right hypochondrium.	No.	No.	None used.	Dose of oil not given. Complete relief.	Hard concretions like gall-stones passed freely for 10 days after taking the oil.	C. R. Early, Ridgway, Pa.
27	F. 35	Right hypochondrium.	Yes.	Very frequent.	Morphine, mercury, and potassium iodide; good results.	Dose of oil not stated. Good results.	Perfectly well in 3 or 4 weeks after taking the oil.	C. R. Early, Ridgway, Pa.
28	M. 23	Right hypochondrium.	Yes.	Yes.	Potassium chlorate, sodium bicarbon., and ipecac; 'good results.	Dose of oil not stated. Cured in 2 weeks.	No recurrence for 3 years.	C. R. Early, Ridgway, Pa.
29	F. 50	Right hypochondrium.	Yes.	Yes.	None by observer, but by other physicians.	Dose of oil not stated. Found relief in 2 days.	No recurrence; treated 40 years ago. Treated many similar cases during this time.	C. R. Early, Ridgway, Pa.
30	F. 54	Right hypochondrium.	Yes.	Quite a number.	Of everything else he tested, chloroform seemed to give the best results; relief temporary.	Six ounces of oil in 2 equally divided doses, half an hour apart. Gave oil at 3 different times. No symptoms for 2 years.	Passed a large number of calculi. Enforces a rigid dietary in all these cases. Allows no sugar, starchy or fatty food.	D. P. Boyer, Philadelphia.
31	M. 60	Right hypochondrium.	Yes.	A number during 3 previous years.	Sodium phosphate, chloroform, morphine, and succinic acid; no satisfactory results.	Same dose as in previous case. Relieved two attacks 2 months apart.	No recurrence since second attack, which occurred a year and a half ago.	D. P. Boyer, Philadelphia.
32	F. 22	Right hypochondrium.	Yes.	Two.	Sodium phosphate, morphine, mineral water, etc., seemed to relieve first, but not second attack.	Only received the oil for 2 days, when she was entirely relieved. Passed a number of calculi.	Treated about 10 cases with the oil, and in all there was either a cure or benefit.	D. P. Boyer, Philadelphia.
33	M. 42	Right hypochondrium and in epigastrium.	Yes.	None.	Tested numerous cholagogues without benefit.	Six ounces of oil at night, followed next morning with laxative; relief.	Discharge of biliary calculi. No recurrence.	Ed. R. Mayer, Wilkesbarre, Pa.
34	F. 40	Right hypochondrium.	Yes.	About 2 a year for 15 years.	Not by observer.	Six ounces of the oil gave prompt relief. This was the last attack the patient had.	Insists on a rigid dictary. Cholagogues. Carlsbad water, etc., as preventives.	Ed. R. Mayer, Wilkesbarre, Pa.
35	M. 58	Right hypochondrium and right shoulder.	Yes.	No.	Not by observer.	Same dose of oil in the evening and purgative in the morning. Complete relief after fourth dose. No recurrence.	Gall bladder was so distended with calculi that it could easily be mapped out. Treated about 35 cases of gall stones during last 14 years with olive oil, and in every instance the severity of the attack was mitigated by the first and entirely relieved by third or fourth dose.	Ed. R. Mayer, Wilkesbarre, Pa.
36	F. 42	Right hypochondrium and back.	Yes.	Suffered for 10 years off and on.	Sodium phosphate gave temporary but no permanent relief like the oil.	Tablespoonful of oil every 3 hours for about 1 month; after an interval gave it again, but less frequently. Pain ceased at once after oil was administered.	No recurrence. Passed a calculus in fæces weighing 40 grains.	J. S. Baer, Camden, N. J.
37	M. 68	Epigastrium and right hypochondrium.	Yes.	Two.	Opium and ether only gave temporary relief.	Dessertspoonful doses of the oil gave prompt and decided relief.	No recurrence.	H. C. Bloom, Philadelphia.
38	F. 42	Region of gall bladder.	Yes.	Yes.	Morphine hypodermically and by the mouth; ether inhalation and hot poultices, without relief.	Half an hour after swallowing from half to three fourths of a pint of oil the pain ceased abruptly.	First three passages after oil contained 2 gall stones; has had two slight attacks since which did not require medical interference.	D. D. Stewart, Med. News, Nov. 23, 1889.
39	F. 45	Right hypochondrium.	Yes.	Yes, for 12 years.	Morphine and atropine hypodermically; hot water, etc.; relief for 2 hours, when pain returned as severely as before. Morphine gave no relief.	Forty-five minutes after being able to retain 5 oz. of *cotton-seed* oil, pain diminished, and ceased 3 hours later.	Subsequent attack also relieved by the oil. Fifth day after last attack passed a calculus as large as a beech-nut.	D. D. Stewart, *Med. News*, Nov. 23, 1889.
40	M. elderly.	....	Yes.	For some years.	Usual remedies, without relief.	Six ounces of oil at bedtime, followed by castor oil next morning. Passage of gall-stones; relief.	In 2 days another paroxysm of pain was threatened. Ordered oil two following nights. Saw her 4 months after. No recurrence.	R. Kennedy, Kingston, Can., *Lancet*, 1890, vol. ii, p. 456.
41	F. ad'lt	....	......	For years.	Not stated.	Full doses of oil for two consecutive days. No return.	Passed a large number of calculi. Relieved two other cases of gall-stone colic with the oil.	R. Kennedy, Kingston, Can., *Lancet*, 1890, vol. ii, p. 456.

No.	Sex and age.	Seat of pain.	Jaundice.	Previous attacks.	Use of other remedies, and results obtained.	Results obtained from the use of sweet oil.	Remarks.	Name and address of observer.
42	F. 40	....	......	Yes.	Treated by other physicians without relief.	Eight ounces of oil at bedtime, and following morning after last a dose of castor oil. Relief.	Evacuated several small gall-stones.	Dr. Gay, Buffalo, *Buff. Med. and Surg. Jour.*, vol. vi, p. 214, 1866–'67.
43	M. ad'lt	....	......	Third attack.	Morphine hypodermically to allay pain.	Eight ounces of oil night and morning, followed by a dose of podophyllin. Relief.	Says that olive oil is as much a specific in gall-stone colic as sulphur is in scabies.	Dr. Gay, Buffalo, *Buff. Med. and Surg. Jour.*, vol. vi, p. 214, 1866–'67.
44	F. ad'lt	Pain in epigastrium.	Yes.	Yes.	Was treated for scirrhus of the liver by other physicians. Received 60 drops of McMunn's elixir of opium with only temporary benefit.	Eight ounces of oil for two consecutive nights. Evacuated calculi. Relief.	Success in this case led him to use it in another, which is not fully described.	Ira Hatch, Chicago, Ill., *Chicago Med. Examiner*, 1867, vol. viii, p. 469.
45	.... ad'lt	....	......	At least one attack before.	One-eighth gr. doses of calomel; bowels moved; no relief; patient vomited everything.	Two pints of oil in divided doses; relief. The oil was the only thing which would remain in stomach.	An operation had been suggested, but with the improvement it was abandoned.	F. W. Langdon, Cin. *Lancet*, Clinic., 1890, p. 191.
46	F. 36	Liver enlarg'd and sensitive; gall bladder enlarged.	......	Almost daily for 5 years.	Obtained no relief from other treatment.	Large doses of oil for 2 weeks. Relief.	Free from attacks for 18 months, up to the time report is made. Passed hard concretions.	S. Rosenberg, *Therapeut. Monatshefte*, Dec., 1889, vol. iii.
47	F. 37	In hepatic region; enlarg'd liver.	Yes.	At least for 5 months, attacks occurred during menstrual periods.	Cathartics and other agents brought no relief.	Twenty-four hours after the first large dose of oil pain disappeared, and in a few days the liver diminished in size.	About 2 months after this attack there was a slight return checked with one dose. No recurrence and a general improvement.	S. Rosenberg, *ibid.*
48	F. 38	....	......	For 9 yrs.; latterly once a week.	Mineral-water cure without benefit.	Large doses of oil relieved her, excepting a slight soreness in region of liver which was cured with 15 grs. sodium salicylate 3 times a day.	Passed a biliary calculus. Free from pain to time of report—about 1 year.	S. Rosenberg, *ibid.*
49	F. 48	In region of gall-bladder.	Yes.	Several attacks.	....	Large doses of oil followed by 2 passages and relief within 24 hours.	Passed large number of concretions. The attack occurred with each menstrual period for some time before she took the oil.	MM. Chauffard et Dupré, Soc. méd. des hôp. de Paris, tom. v, 1888.
50	F. 62	....	Yes.	For 12 years.	....	Large dose relieved her for 8 days, but the final results are of a doubtful character.	....	MM. Chauffard et Dupré, *ibid.*
51	F. 50	....	Yes.	For a number of y'rs.	....	Large doses of oil were followed by local and general improvement.	....	MM. Chauffard et Dupré, *ibid.*
52	F. 45	In hepatic region.	Yes.	At least 3 attacks.	....	Large doses of oil followed by beneficial results.	The pain in the hepatic region disappeared, and the colic was cured.	MM. Chauffard et Dupré, *ibid.*
53	F. 58	In hepatic region.	Yes.	A number of attacks.	....	Large doses of oil followed by relief.	Passed a large number of concretions. Pain and swelling in liver disappeared.	MM. Chauffard et Dupré, *ibid.*
54	F. 43	In hepatic region.	Yes.	Six attacks.	....	Large doses of oil followed by relief.	The attacks of biliary colic were associated with nephritic colic, and with the discharge of a urinary calculus, biliary calculi passed at the same time.	MM. Chauffard et Dupré, *ibid.*

An analysis of these fifty-four cases shows that there were about one third more females than males who suffered from gall-stone colic; that two died, that in three negative results were obtained, and that in fifty, or in 98 per cent., positive relief was afforded. These results make a better showing still when we consider that one of those who died was suffering from adhesive obstruction of the bile ducts—a disease which no procedure, either medical or surgical, could have remedied. Nor do these figures give us a true estimate of the favorable action of olive oil in this disease, for two of the observers state that they have treated forty other cases of biliary colic without a failure, but of which they had kept no record—making in all a collective return of eighty-nine cases—showing the great value of this drug.

These cases illustrate, then, the positive efficaciousness of sweet oil in the treatment of gall-stone colic, and the question naturally arises, therefore, as to the manner in which this agent acts. Dr. Rosenberg's experiments (Ueber die Anwendung des Olivenöls bei der Behandlung der Gallensteinkrankheit, *Therapeutische Monatshefte*, December, 1889, S. 542) demonstrate beyond a doubt that it largely increases the quantity of bile secreted, while at the same time it diminishes its consistency. But how does it accomplish this? Does it stimulate the biliary channels by coming in contact with their openings into the alimentary canal? Or is it decomposed into fatty acids and glycerin through the instrumentality of the pancreatic juice, and does the "glycerin so liberated exert in the duodenum an action similar to that which takes place when it is introduced into the rectum," causing a powerful reflex peristalis—an ingenious theory suggested by Dr. D. D. Stewart?* Or does it act in accordance with the hypothesis formulated by Virchow, who shows from his own experiments (*Therapeutische Monatshefte*, 1890, S. 86) that it is absorbed from the alimentary canal, is excreted by the liver, and is thrown into the bowels again through the biliary passages? The last of these theories appears to be most rational, because it explains certain well known features in its action, and also places it on a level with the action of other cholagogues. We may conceive, then, that the beneficial influence of oil consists not so much in dissolving the biliary concrements as it does in increasing the biliary excretion, in flushing, and in lubricating and washing out the passages of the liver.

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* A Suggestion as to the Action of Olive or Cotton-seed Oil in Gall-stone Colic. By Dr. D. D. Stewart. *Medical News*, November 23, 1889.

Another point of interest in this collection is as to the proper dose of the oil. Are the large doses necessary which were administered to most of the cases in this collection? It appears not, for eight of the cases (Nos. 11, 12, 15, 16, 22, 23, 24, and 25) received only dessertspoonful doses every three or four hours, and apparently with the same prompt and positive relief as that which was afforded by doses of from five ounces to one and two pints. If this should be confirmed by further experience, it would be a great practical gain in view of the fact that a great many persons show a strong aversion to all kinds of oil, especially if they are to be taken in large quantities.

Furthermore, according to the observation of Dr. Stewart (Case 37), it does not appear to make any difference whether olive or cotton-seed oil is used. Indeed, it is well known that much of the oil which is sold as olive is in reality refined cotton-seed oil; and Dr. Stewart's observation tends to show that, in all probability, any bland oil will have the same effect on the disease under consideration.

The Mississippi Valley Medical Association will hold its seventeenth annual meeting in St. Louis on October 14th, 15th, and 16th, under the presidency of Dr. C. H. Hughes, of St. Louis. The preliminary programme includes the following: The Toxic Effect of Tobacco Vapor, with Report of Cases, by Dr. W. Carroll Chapman, of Louisville; The Management of Chronic Diseases, by Dr. S. Baruch, of New York; The Ethics of curing Consumption and other Chronic Diseases, by Dr. John Ashburton Cutter, of New York; The Treatment of Typhoid Fever, by Dr. Robert C. Kenner, of Louisville; The Carbolates, by Dr. William F. Waugh, of Philadelphia; On Degenerative Processes in the Spinal Cord consequent upon Constitutional Diseases, by Dr. Hugo Summa, of St. Louis; Iliac Indigestion (Intestinal Dyspepsia) and its Treatment by Antiseptic Agents, by Dr. Frank Woodbury, of Philadelphia; The Influence of Graveyards on Public Health, by Dr. J. W. Carhart, of Lampasas, Texas; Rheumatism and Gout in their Causal Relation to Eczema: their Management, by Dr. A. H. Ohman-Dumesnil, of St. Louis; The Value of Epilation as a Dermato-therapeutic Measure, by Dr. Joseph Zeissler, of Chicago; The Gradation of Lenses, by Dr. Dudley S. Reynolds, of Louisville; The Influence of Alcohol on Vision, by Dr. Francis Dowling, of Cincinnati; Tobacco and Insanity, by Dr. Ludwig Bremer, of St. Louis; The Present Aspect of Cerebral Surgery, by Dr. Landon Carter Gray, of New York; The Forensic Aspect of Bruises and Fractures in the Insane, by Dr. J. G. Kiernan, of Chicago; Amputation of the Scrotum, with Report of a Case, by Dr. B. Merrill Ricketts, of Cincinnati; Observations on Urethral Stricture, by Dr. G. Frank Lydston, of Chicago; The Mechanical Element in the Treatment of Compound Fracture, by Dr. Warren B. Outten, of St. Louis; A Report of a Case of Retention of Urine caused by Multiple Urethral Calculi, by Dr. J. V. Prewitt, of West Point, Ky.; Some Observations on Rectal Surgery in Europe, by Dr. Leon Straus, of Louisville; A New Method of Diagnosticating Obstruction in the Sigmoid Flexure, by Dr. J. M. Mathews, of Louisville; The Pathology and Surgical Treatment of the so-called Strumous Inguinal Lymphadenitis, by Dr. L. T. Riesmeyer, of St. Louis; The Treatment of Gonorrhœa, by Dr. E. C. Underwood, of Louisville; Extirpation of the Thyreoid, with Report of Case, by Dr. Emory Lanphear, of Kansas City; Are Conservative Amputations always in the Interest of the Patient? by Dr. Charles Truax, of Chicago; Sarcoma of the Dorso-scapular Region—Operation—Recovery, by Dr. George N. Lowe, of Randall, Kansas; Mouth Breathing, by Dr. Eric E. Sattler, of Cincinnati; Empyema of the Superior Maxillary Antrum with only Nasal Symptoms, by Dr. Hal Foster, of Kansas City; A Superior Remedy for Nasal Catarrh—Campho-menthol, by Dr. Seth S. Bishop, of Chicago; A Case of Reflex Aphonia demonstrated to be due to Pressure of the Middle Turbinated against the Septum Nasi, by Dr. Hanau W. Loeb, of St. Louis; The Importance of recognizing a Temporary Rhachitic Condition in Infants, by Dr. John A. Larabee, of Louisville; A Pathological Study of Pelvic Inflammation in Women, by Dr. W. Warren Potter, of Buffalo; Observations on the Management of Uterine Tumors, by Dr. C. A. L. Reed, of Cincinnati; Complications following Abdominal Section, by Dr. Rufus B. Hall, of Cincinnati; Obstetric Dispensaries: their Management, by Dr. L. A. Berger, of Kansas City; The Surgical Treatment of Peritonitis, by Dr. A. V. L. Brokaw, of St. Louis; Temperature no Guide in Peritonitis, by Dr. H. C. Dalton, of St. Louis; Some Monstrosities at and after Birth, by Dr. David S. Booth, of Belleville, Ill.; Oophorectomy *vs.* Donothingism, by Dr. Willis P. King, of Kansas City; A Successful Gastrostomy for Impermeable Stricture of the Cardiac End of the Œsophagus: Subsequent Dilatation of the Stricture, by Dr. A. Dixon, of Henderson, Ky.; The Nervous Equation of Pelvic Inflammation, by Dr. G. F. Hulbert, of St. Louis; Hysterectomy for Cancer, by Dr. J. M. Richmond, of St. Joseph; The Application of the Obstetrical Forceps, by Dr. John Bartlett, of Chicago; Appendicitis, by Dr. W. H. Link, of Petersburg, Ind.; Phthisis—Beginning of its Treatment, by Dr. Edward F. Wells, of Chicago; Hydrotherapy in Typhoid Fever, by Dr. H. H. Middlekamp, of Warrenton, Mo.; Hystero-epilepsy, by Dr. Howell T. Perching, of Denver; The Importance of Definite Strength in Mineral Waters, by Dr. G. F. Hulbert, of St. Louis; The Time and Place for Stimulants, by Dr. C. H. Hughes, of St. Louis.

The Physical Condition of New York State Militiamen.—A general order issued from the Adjutant-General's office on September 5th contains the following rules for the examination of recruits, prepared by Surgeon-General Bryant:

1. Less height than five feet five inches should reject.

2. Chest measurement less than thirty-two inches with a complete expiration should reject.

3. Chest expansion of less than two inches with a full inspiration should reject.

4. Weight less than one hundred and twenty-five pounds (infantry) and greater than one hundred and ninety pounds (infantry and artillery), and greater than one hundred and sixty-five (cavalry and light artillery), should reject.

5. Qualification or disqualification for service on account of age should be in accordance with M. C. 40, which is as follows: Able-bodied men of good character, *of eighteen years of age and upward*, who can read and write, may be enlisted in the National Guard in the first instance for a term not less than five nor more than seven years, and on the expiration of that term they may be re-enlisted, either immediately or at any time thereafter, for terms of one or more years, at their option; but no person *above the age of forty-five years* shall be enlisted or re-enlisted except by permission of the commandant of the brigade or division to which the organization is attached; nor any person *under the age of twenty-one years*, without the consent of his parent or guardian; provided, however, that enlistments as musicians between the ages of *sixteen and twenty-one years* may be made with the consent of parents or guardians. . . .

6. The loss of the sight of an eye should reject. Permanent defects of one or both eyes, which impair the vision for proper marksmanship, sentry duty, etc., should reject. Not only this, but also severe trachoma, entropion, extensive corneal opacities, cataract, inordinate strabismus and nystagmus, should reject, if unrelieved at the time of final examination. However, any defect in vision that can be corrected need not reject. For signal-service duty, color-blindness should always reject.

7. A degree of deafness that may prevent the proper reception of the countersign should reject. In making the examination for this degree of deafness, it is well to remember that transient and remedial causes, such as closure of the Eustachian tube, ceruminous collections, polypi, etc., may temporarily seriously impair the hearing of the recruit. However, the previous history, together with a critical physical examination, will soon disclose the true nature of the trouble.

8. Defective articulation that may prevent giving proper alarm and

Lectures and Addresses.

ORTHOPÆDIC SURGERY AS A SPECIALTY.

THE PRESIDENT'S ADDRESS, DELIVERED BEFORE THE AMERICAN ORTHOPÆDIC ASSOCIATION, AT WASHINGTON, D. C., *September 22, 1891.*

By A. B. JUDSON, M. D.,
NEW YORK.

A FLOURISHING medical society sometimes divides into sections. It is an involuntary process, or, at least, one to which the members are forced by the necessity of thoroughly accomplishing the objects of the society. The process may be called an analysis. In the present instance, however, if I understand the organization of the Congress of American Physicians and Surgeons, we have a synthesis. A number of societies voluntarily combine to secure ends which were not contemplated at the beginning of each. A division of labor having been made, according to which each society has its special work to do, it is proper and useful for the societies to meet together for co-operation. Let us therefore briefly consider some of the salient features which mark our specialty of orthopædic surgery. A better knowledge of ourselves will put us in more quick relation with other workers, both general and special, and enable us better to do our humble part in the grand plan.

In common with other specialists, we occasionally hear that we are limited in the possible range of our achievements. The limitation is, however, entirely voluntary, and the work within these limits is practically inexhaustible. If we were not so busy, we might perchance be troubled because we are not always and exactly understood. The sign before an orthopædic hospital in New York is supposed by some of the passers-by to indicate a homœopathic institution. I am probably not alone in having been asked to perform the minor surgical operations of the chiropodist. Many, even among the learned, suppose that the latter part of our name is derived from the Latin word for *foot*, instead of from the Greek for *child*. We are also confounded in the minds of some with the instrument-makers. I mention these things in passing, without a serious thought. If they exist, like morning mist, they will pass away.

It is well, however, to recognize the fact that our practice is comparatively lacking in popular qualities. We have no critical, capital, or brilliant operations. What of brilliancy is there in keeping a limb in such an attitude that the weight of the body in locomotion shall be a favorable instead of an unfavorable agent until the natural growth of the member results in comparative symmetry; or in controlling the environment of the diseased joint and the patient, so that the natural processes of recovery and repair shall have their triumph, while the limb is daily growing in symmetry and ability with the growing child? This is not bold surgery; but there is great pleasure in watching and reverently assisting these constantly recurring natural miracles. And will any of us forget the delightful friendships made among our little patients, their pretty bashfulness, their ready confidence, their irrepressible cheerfulness, their graceful acceptance of what is, alas, inevitable? The combination in them of childish and heroic qualities is a daily wonder. To watch them at play is like a dream in which the birds and wild flowers are enacting a tragedy and improving the precepts of Stoic philosophy.

Our practice is not only lacking in brilliant achievements, but it is also uninviting, because, as a rule, our patients do not make absolute recoveries. There is always, or nearly always, a residuum of disability and deformity, and in this is to be found, perhaps, one reason why our specialty has existence; for what general practitioner would lightly assume the care of a case so exceptional in his practice and so momentous as those which fall to our specialty?

The why and the wherefore of specialties in general, and ours in particular, are questions of interest. Some will say that we have a natural aptitude for mechanics, an inherited preference for slow and sure methods, compared with those that are quick and uncertain, or an inborn reverence for what is physically demonstrable. These personal characteristics may explain why some of us are orthopædists, but I believe the reason why our specialty exists and thrives is to be found in the desire of the public, the final arbiter, that experts should be invited to bear the responsibility of orthopædic cases.

One very attractive feature of orthopædic practice is its *reality*—for want of a better word. It is especially the domain of physical demonstration, where the acceptance of pathological doctrine, as well as therapeutic precept, must be preceded by absolute proof. Here subjective symptoms are forgotten in the presence of objective signs. The data for diagnosis are visible, palpable, and mensurable. Treatment is by forces whose action is nicely directed, increased, diminished, and accurately measured. The very weight of the body is duly considered in trauma and therapeutics, and finally the results of treatment are recorded in degrees of a circle and fractions of an inch. Dealing thus, as we do, with physical realities, it is well for us to keep our eyes open to the moral verities also, which no less form part of the tissue of our daily professional work. Let us remember that diligence is the price of success, and that the only desirable success is that which is reached by the rejection of error and the loyal recognition of truth.

Since our last meeting there has occurred the death of one of our corresponding members, whose hostility to error might, in all friendly criticism, be called intemperate—one whose diligence and devotion to the interests of his patients made him an exemplar worthy of our affectionate remembrance. But I will not trespass on the subject of the first paper of our session, which is by Dr. A. J. Steele, of St. Louis, on The Orthopædic Work of the late Mr. Thomas, of Liverpool.

Apparent Differences of Distance due to Color.—Basevi (*Arch. d'ophth.*, x, 4) has made the peculiar discovery that when different colors are placed upon the same black background in the same plane, they appear to be at different distances from the eye. At the distance of five metres, yellow seemed to be about a centimetre and a half and red about nine tenths of a centimetre nearer than the blue on the colored background. These apparent differences changed, but according to certain definite laws.—*Boston Medical and Surgical Journal.*

Original Communications.

SOME UNUSUAL FRACTURES OF THE LEG.

I. Incarcerating Fracture resulting in Non-union.
(*a*) Simple. (*b*) Compound.
II. Compound. (*a*) Nailing; Non-union; Secondary Wiring.
(*b*) Acute Emphysematous Gangrene; Thigh Amputation.
III. Extensive Comminution.
IV. Compound Green-stick.

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The following cases* of fracture possessed points of uncommon interest to those who saw them while under treatment, and they are now presented, without wearisome tables or collations, with the hope that they may prove to others equally interesting and instructive.

I. (*a*) *Simple Incarcerating Fracture; Immediate Operation.*

Case I.—A. B., a man, aged twenty-six, sustained a fracture of the tibia, July 16, 1889, by the fall of a barrel of sugar against his leg. He was admitted to the hospital on the second day; preternatural mobility and deformity served to establish the diagnosis, although crepitus had not been and could not be elicited. The patient, being informed that firm bony union was, under the circumstances, highly improbable, at once consented to an operation.

Operation, July 20th.—A longitudinal incision exposed an irregular transverse fracture, the fragments lying in contact upon the inner side, but separated upon the outer by a band of muscular tissue at least half an inch thick. This was removed, the fragments were nailed (*A* in figure), the wound was closed without drainage by a double row of silk sutures, and a cast was applied. An uneventful recovery followed, with firm bony union in six weeks.

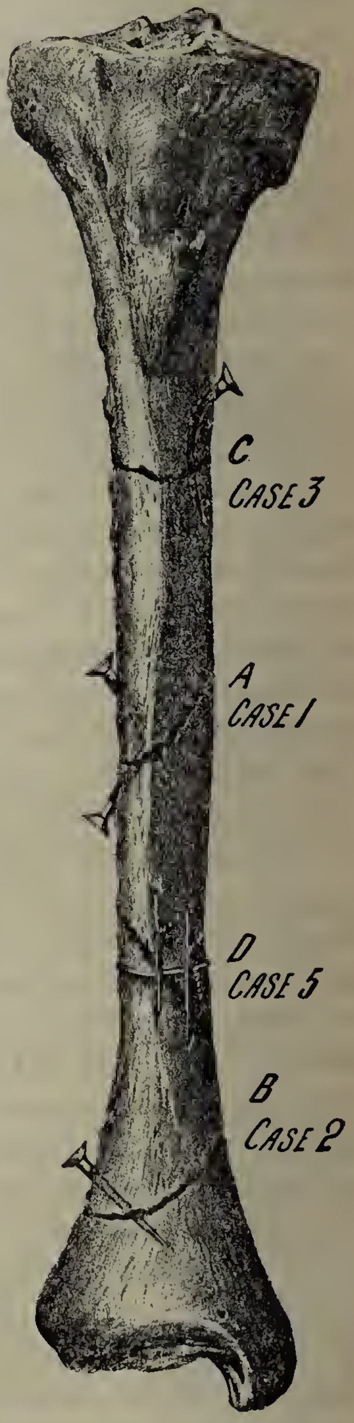
Simple Incarcerating Fracture; Secondary Operation.

Case II.—J. H., a man, aged forty, on April 31, 1889, suffered fracture of both bones of the leg, which was treated in the hospital by plaster casts. He was, at his own request, discharged at the end of six weeks, still wearing a cast. On July 2d he was admitted to my service, still wearing a cast, having failed to get firm union. At his request I operated on July 15th.

Operation.—A five-inch longitudinal incision over the seat of injury revealed an oblique break of the tibia from without downward and inward through the middle of its lower third. The fragments were in perfect *position*, but *apposition* was rendered impossible by the presence between the fragments (to the extent of the inner two thirds) of a slip of fascia, which had entirely prevented callus formation over a like extent, while that about the remaining third was but feebly marked. After removing the fascia the surfaces of the fragments were freshened and a nail was passed downward and inward from the upper into the lower fragment (*B* in figure). He made an uneventful recovery, with bony union in thirty-five days.

(*b*) *Incarceration in Compound Fracture; Secondary Nailing.*

Case III.—M. R., a man, aged twenty-six, was admitted on April 9, 1839, to Dr. Wittwer's care, having been kicked by a horse two hours before. Upon examination, there was found a fracture of the right tibia at the junction of its lower and middle thirds, with but slight displacement and about an inch shortening. The fracture communicated with the air by a round, punctured wound (as by a calk) an inch in diameter.



Dressing.—After removing a small spiculum of bone the wound was thoroughly irrigated with 1-to-4,000 bichloride solution and dressed with sublimate gauze, over which was applied a plaster dressing. The temperature rose to 102·4° F. at 9 p. m. of the following day, but quickly subsided. The dressing was removed on the twenty-sixth day, discovering the wound of the soft parts but partially healed, with seemingly no union of the fragments. Very slight discharge. Cast reapplied.

May 14th (thirty-fifth day).—Fibrous union. External wound closed. Cast reapplied.

July 1st (fifty-sixth day).—Having assumed the service, I removed the cast and found the union still imperfect.

Operation, July 3d.—A four-inch longitudinal incision over the seat of injury exposed a transverse fracture, within which was firmly wedged a piece of fascia. Callus formation *nil.* The fascia was removed, the ends of the fragments were freshened with a sharp spoon, brought into apposition, and fastened with a curved nail (*C* in figure) driven from above. The wound was closed without drainage by a double row of silk, enveloped in sublimate gauze, and a cast applied. An uneventful recovery followed, with bony union in twelve weeks.

I have boldly coined the term "incarcerating fracture," as designating the conditions met with in the preceding cases, from a firm belief that (although at present not generally so considered) they in reality constitute a clinically and pathologically separate and distinct class of injuries totally unamenable to the ordinary modes of treatment. Hamilton, Erichsen, Agnew, Pick, Stimson, and, in fact, most systematic writers upon fractures, speak of the incarceration of fascia, tendons, muscles, etc., within the line of fracture, but recognize it not as an indication for immediate operation, but as a rare complication, which *may* delay or inhibit union. Such views, although in strict accord with our inherited philosophy of fracture repair (which ascribes to injured tissues an intelligent "effort at repair"), must, in the face of accumulating experience, soon take their place in the surgical lumber-room. The labors of Macewen have already illumined that dark ground—patellar fracture—which from time immemorial has been a reproach to surgeons and surgery, and scarcely less brilliant have been the researches of Senn upon the pathology and treatment of intracapsular fracture, while both have shed a vast light upon the whole field of non-union. Incarcerating fractures, whatever their location, are capable or incapable of union to a degree proportionate to the extent of surface separated by the included tissue.

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* These cases are in part personal and in part from the service, at Cook County Hospital, of my friend Dr. Hermann R. Wittwer.

II. (*a*) *Compound Fracture; Secondary Wiring.*

Case IV.—P. H., a man, aged thirty-three, was admitted to the hospital, under the care of Dr. Wittwer, June 6, 1889, having had a compound fracture through the middle of the left tibia nailed in the Missouri Pacific Railroad Hospital, St. Louis, eighteen months before. Two weeks after the nailing the dressings had been removed, when it was found that the soft parts had sloughed, exposing the nails and the ends of the fragments. Afterward the nails and a number of pieces of bone were removed, and this was followed by the formation and evacuation of several abscesses at the seat of fracture. Upon his entrance into the hospital the wound had closed, with the exception of a small sinus; but there seemed to be not the slightest degree of union between the fragments. Manipulation caused severe pain. On the day following, the patient had a chill and a temperature of 105·8°.

Operation, June 24th (Dr. Wittwer).—A three-inch longitudinal incision was made over the seat of injury and the fibrous tissue and granulations were removed from the ends of the fragments, which were then drilled and wired. Following this, the fibula was cut down upon, and the fragments were scraped and wired in like manner. Both wounds were closed without drainage by a double row of silk sutures. (Patient transferred to writer's care on July 1st.)

July 7th (thirteenth day).—As the patient complained of considerable pain, the dressing was removed, exposing some necrosis of tissue about the tibial wound, while that over the fibula was firmly united. The wires from the tibia protruded. The wound was irrigated with sublimate solution, and packed with iodoform gauze, and a cast, re-enforced by tin strips, applied.

September 27th (seventy-fifth day).—The wound was firmly healed, but a slight degree of motion at the seat of fracture could still be elicited. Further improvement was slow, but he is reported as recovered six months after the operation.

(*b*) *Compound Fracture of the Tibia, Fracture of the Fibula; Acute Emphysematous Gangrene; Thigh Amputation.*

Case V.—T. M., a man, aged twenty-seven, on June 29, 1889, fell from a platform about sixteen feet and struck a fence, receiving a compound comminuted fracture of the tibia (with a simple fracture of the fibula) at the junction of its middle and upper thirds.

Operation (Dr. Wittwer).—Some half dozen fragments of bone (up to an inch and a half in length) were removed through a two-inch longitudinal incision, and holes bored in both fragments of the tibia on either side of the median line, through which were passed two wires. These failing to maintain apposition, a third wire was thrown around the bone (*D* in figure), which held it firmly and securely.

June 30th (second day).—Temperature at 6 p. m., 104·6°.

(On the following day occurred the quarterly change of service, bringing the patient under the writer's care.)

Examination, 1 P. M., July 1st.—The toes were blue and cold, giving upon pressure a fine crepitation. The cast was removed, whereupon an emphysematous condition of the tissues up to and about the patella could be easily recognized, while they presented a brownish or brownish-green discoloration. Upon removing the sutures, a foul, stinking gas bubbled freely from the wound.

The patient was immediately placed upon the table and a circular thigh amputation done at the junction of the middle and upper thirds, as the emphysema had now (in less than two hours) reached nearly to the middle of the thigh. The flaps over the anterior half of the stump were brought together vertically and the remainder of the wound was packed with iodoform gauze. A careful watch was kept over the wound during the succeeding days, but it was found that the gangrene had been entirely checked.

25th (twenty-seventh day).—The wound now presenting a healthy granulating surface, the patient was anæsthetized, the granulations were lightly scraped, two inches of the femur were sawn off, and the wound was coaptated and dressed (without drainage) as in a recent amputation. Primary union was firm in twenty days.

III. *Extensive Comminution.*

Case VI.—F. B., a man, aged fifty-eight, was admitted into the hospital on August 15, 1889, about two hours after having been run down by a "Pan Handle" engine. Upon examination, it was found that he had sustained a crushing injury of the right leg through the junction of its lower and middle thirds (the foot was simply dangling by a single tendon), while the lower part of the left leg, although the skin was not broken, was reduced to a flail-like condition, so great was the comminution of its bones. Exact diagnosis was out of the question, but I am confident that the lower halves of the tibia and fibula were reduced to at least half a dozen fragments each, and I can truthfully say that I had not the slightest expectation of securing a useful member for the poor fellow, but, having disposed of the crushing injury, I gave the foot to Dr. Edgerly, asking him to hold it in as good a position as possible while I set about incasing it in plaster, but only after having shaved, scrubbed, and irrigated the leg from thigh to toes, trimming the nails and scrubbing the subungual spaces, and enveloping the whole member in sublimate gauze.

September 3d (eighteenth day).—I removed the cast, and, to my very great surprise and satisfaction, found the limb in excellent position with a freely movable ankle.

25th (fortieth day).—There was firm bony union without perceptible deformity, and the patient was able to support the weight of the body upon the limb while walking with crutches. The most exceptional results obtained in this case are in large part attributable to the intelligent co-operation of Dr. Edgerly in securing the proper position and degree of extension during the dressing and in maintaining the same until the plaster was thoroughly dry.

IV. *Compound "Green-stick" Fracture.*

Case VII.—A. K., a boy, aged six, was run over by a coal wagon on August 21, 1889, and brought immediately to the hospital, where I saw him about an hour later. In the examining room his injury had been diagnosticated as compound fracture of the tibia, but, upon examination, I was inclined to regard it simply as a wound of the soft parts, because of entire absence of mobility at the point of supposed fracture. However, a comparison of the axes of the tibiæ showed a slight deformity of the left. After thoroughly irrigating the wound, exploration revealed a slight transverse fissure extending around the front half of the tibia to meet vertical ones on its outer and inner aspects respectively. In other words, there was a green-stick fracture The periosteum was brought together with fine silk, the wound closed without drainage, and the leg incased in plaster.

August 24th (third day).—Dressed through a fenestra.

September 3d (thirteenth day).—Sutures removed. Primary union.

19th (thirtieth day).—Cast removed. Bone straight and sound.

The latter case I believe to be unique in that "greenstick" fracture resulted from a direct crushing force of sufficient intensity to render it compound. In the surgical literature to which I have had access I have been unable to find a parallel.

Anderson, Ind., *August 24, 1891.*

AN AID TO THE DIAGNOSIS OF SURGICAL AFFECTIONS OF THE URINARY BLADDER.

By FRED JENNER HODGES, B. Sc., M. D.,
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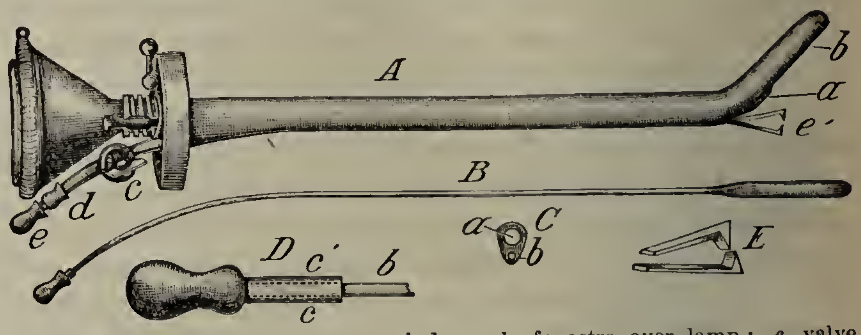
The art of cystoscopy has, without the shadow of a doubt, laid the foundation of a scientific vesical surgery, but, great as have been the advances of recent years in this direction, a very considerable refinement in diagnostics has yet to be effected before anything like perfection can be expected. It is in by no means exceptional cases that, even after the surgeon has viewed the entire surface of the bladder, he finds himself in doubt as to a diagnosis. He may have detected villi or located an ulcer, but, having afforded such information, the resources of cystoscopy are exhausted. It is true that after hours of angling he *may* snare off a bit of a villus, but failure is much more frequent than success, and even this slight possibility is denied in the case of an ulcer, so that the usual ultimate necessity in either instance is exploratory section or "masterly inactivity." Now, I think it requires no argument to convince the dumbest that positive histological data are in either of these instances (I have selected them simply for illustration) the great desiderata.

How are they to be obtained? Having in numerous instances been confronted by this formidable problem, I can not but think that others have had like experience; and having effected a solution which has proved eminently satisfactory in my hands, I desire to recommend it to the profession.

I have attempted in the accompanying drawing (Fig. A) to represent Leiter's latest cystoscope, to which my device is essentially an accessory, and, since the instrument in question differs in some very material particulars from his earlier models, a short description of it will not be out of place. It consists essentially of a hollow staff, shaped like an angular sound, containing above an observation tube (*a*, Fig. C) closed in at *a* (Fig. A) by an obliquely placed glass window, and below a second much smaller channel (*b*, Fig. C) for irrigation, which, when attached to a fountain syringe, permits of perfect control of the distention of the bladder. Within the limb is placed a minute incandescent lamp the rays from which, shining through the fenestra at *b* (Fig. A), illuminate an area of the bladder's surface.

Now, my device consists simply of a delicate squirrel-toothed forceps (*e*, *e′*, Fig. A) which may be passed into the bladder along the irrigating channel, and by means of which small or even very considerable-sized bits of tissue may be *cut* from a tumor, the margin of an ulcer, or the bladder wall, and brought away for examination. It will be noticed in the drawing that the window (*a*) and fenestra (*b*) are situated upon the lower aspect of the limb, thus doing away with the prism made necessary in the earlier models when they were placed upon the upper aspect.



A, Leiter's (new) cystoscope. *a*, window; *b*, fenestra over lamp; *c*, valve guarding irrigating tube *d*; *e*, *e′*, author's forceps in position.
B, applicator.
C, section of tube showing (*a*) observation tube and (*b*) irrigating tube.
D, detail of staff of forceps and applicator, *c*, *c′* being soft-rubber collar.
E, detail of forceps's jaws.

The drawing represents the forceps in position but with the jaws opened vertically. When in use, however, the horizontal is the proper position, as then it does not obstruct the vision; on the contrary, a full view is gained not only of the diseased area, but also of the forceps as it engages the tissue, and in this manner you *see* the exact source of your specimen.

Following out the idea, I have had a silver-wire applicator made by means of which local applications may be made to the bladder's surface under the eye of the surgeon. I have thus far had occasion to use only nitrate of silver and chromic acid. The former may be fused directly upon the applicator, while the chromic acid is incorporated into a bead of microcosmic salt, as in blow-pipe chemical analysis, and applied in that manner.

I have found it expedient to fit the base of the staff of both instruments with a collar of soft rubber (*c*, *c′*, Fig. D) which fits rather snugly into the mouth of the irrigating tube (*d*, Fig. A), yet permits of reasonably free movements, as in this way the return of fluids along the applicator or forceps is prevented.

August 21st.

A REPORT OF THIRTY-ONE CASES OF RINGWORM OF THE SCALP

TREATED SUCCESSFULLY WITH BICHLORIDE, KEROSENE, AND IODINE.

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RESIDENT PHYSICIAN, NEW YORK INFANT ASYLUM,
MOUNT VERNON, N. Y.

The following is a record of thirty-one cases of ringworm of the scalp which occurred in the New York Infant Asylum, Mount Vernon, N. Y., and is reported through the courtesy of Dr. George T. Elliot, attending dermatologist, who suggested the kerosene and bichloride treatment, having seen good results obtained from it by Dr. Amos Lewis, at the Skin and Cancer Hospital, Fordham Heights.

The diagnosis in each case was confirmed by the microscope. In all, the hair was cut as short as possible as soon as the disease was diagnosticated, and kept very short during the treatment. Four were treated three times a week with a five-per-cent. ointment of ichthyol and chrysarobin.

After cleansing the parts with soap and water, the ointment was thoroughly rubbed into the diseased areas, and a layer an eighth of an inch in thickness was spread over a greater part of the scalp; over this a thick layer of oxide-of-zinc gelatin was spread, covered with cheese-cloth; and over all a tight-fitting muslin cap was worn.

In Case IV this treatment was most satisfactory. In Cases I, II, and III the treatment was discontinued after a fair trial, and other measures were employed. In Case VI epilation and the daily application of a two-per-cent. bichloride solution was employed, with the result that the disease spread, involving large areas. Eleven cases were treated entirely with a solution of bichloride of mercury and kerosene. Two grains of bichloride were dissolved in a small quantity of alcohol, and this was added to half an ounce each of kerosene and olive oil. This was thoroughly rubbed into the diseased areas, and the whole scalp saturated once daily until a smart inflammation was produced. The parts were then covered with a simple ointment for a few days until the inflammation subsided, when the applications were renewed, but not so frequently or in so vigorous a manner.

In fifteen cases the writer made a variation in the treatment. A saturated solution of iodine in absolute alcohol was thoroughly rubbed into the diseased areas alternately with the kerosene and bichloride; in other respects the treatment was the same as the preceding.

In all, the scalps were frequently washed with soap and water. In but three cases did the disease spread after the first application of the kerosene and bichloride; this was owing, perhaps, to want of thoroughness on the part of the nurse.

Slight inflammation occurred in the majority of the cases after five or six days of treatment; but in a few the most vigorous application failed to produce the slightest inflammatory signs. In these the progress toward cure was comparatively slow.

A moderately severe squamous condition of the scalp followed in twenty cases. This was readily controlled by a three-per-cent. solution of resorcin applied frequently.

The average duration of treatment in all cases was eight weeks and a half; the average duration with kerosene and bichloride, nine weeks and a half; the average duration with kerosene, bichloride, and iodine, six weeks and a half.

No. of cases.	Age of patient.	No. of diseased areas.	Diameters of areas.	Treatment.	Duration of treatment.	Results of observation of patients after discharged cured.
I.	4 years.	3	2 in., ¼ in., ¼ in.	Ungt. of chrysarobin and ichthyol 20 weeks, followed by kerosene and bichloride 4 weeks.	24 weeks.	No trace of disease from date of discharge, cured, Jan. 1, 1891, to Feb. 1st, when removed from the institution.
II.	3½ years.	1	1 in.	Ungt. of chrysarobin and ichthyol 12 weeks; during treatment disease spread, involving many small areas, followed by kerosene and bichloride 6 weeks.	18 weeks.	No trace of disease since discharged cured, Jan. 15, 1891. No tinea in hair at time of writing.*
III.	5 years.	1	1 in.	Ungt. of chrysarobin and ichthyol 12 weeks; during treatment disease spread, involving three large areas; followed by kerosene and bichloride 8 weeks.	20 weeks.	No trace of disease since discharged cured, Jan. 1, 1891. No tinea in hair when removed from the institution, March 31st.
IV.	2 years.	1	2 in.	Chrysarobin and ichthyol.	1 week.	Case soon removed from the institution, but was seen by Dr. Elliot at the Demilt Dispensary, two months after treatment, where the patient had been taken for consultation in regard to the chrysarobin discoloration on scalp. No trace of disease could be found at this time.
V.	4 years.	6	1 in.	Kerosene and bichloride.	24 weeks.	No trace of disease since discharged cured, Nov. 1, 1890.
VI.	4 years.	1	1 in.	Epilation, and the daily application of a two-per-cent. bichloride solution for 5 days; followed by kerosene and bichloride 8 weeks.	9 weeks.	No trace of disease since discharged cured, Nov. 8, 1890. No tinea in hair at time of writing.
VII.	4 years.	2	1 in., ½ in.	Bichloride and kerosene.	20 weeks.	No trace of disease since discharged cured, Feb. 1, 1891. No tinea in hair at time of writing.
VIII.	4 years.	1	2 in.	" "	8 weeks.	No trace of disease since discharged cured, Oct. 1, 1890. No tinea in hair at time of writing.
IX.	4½ years.	3	½ in.	" "	9 weeks.	No trace of disease since discharged cured, Feb. 7, 1891. No tinea in hair at time of writing.
X.	3 years.	1	1½ in.	" "	9 weeks.	No trace of disease from date of discharge, Feb. 8, 1891, to March 31st, when removed from the institution.
XI.	3 years.	1	1½ in.	" "	3 weeks.	No trace of disease since discharged cured, Dec. 15, 1890. No tinea in hair at time of writing.
XII.	3 years.	1	1½ in.	" "	6 weeks.	No trace of disease since discharged cured, Feb. 1, 1891. No tinea in hair at time of writing.
XIII.	3½ years.	1	1½ in.	" "	8 weeks.	No trace of disease since discharged cured, Feb. 26, 1891. No tinea in hair at time of writing.
XIV.	5 years.	2	1 in.	" "	7 weeks.	No trace of disease since discharged cured, Jan. 15, 1891. No tinea in hair at time of writing.
XV.	3 years.	3	½ in.	" "	6 weeks.	No trace of disease since discharged cured, Feb. 15, 1891. No tinea in hair at time of writing.

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* Written May 25, 1891.

No. of cases.	Age of patient.	No. of diseased areas.	Diameters of areas.	Treatment.	Duration of treatment.	Results of observation of patients after discharged cured.
XVI.	6 years.	1	½ in.	Bichloride and kerosene.	4 weeks.	No trace of disease since discharged cured, Feb. 12, 1891. No tinea in hair at time of writing.
XVII.	5 years.	5	½ in., ½ in., ½ in., ½ in., 1 in.	Bichloride, kerosene, and iodine.	9 weeks.	No trace of disease since discharged cured, March 25, 1891. No tinea in hair at time of writing.
XVIII.	6 years.	1	2 in.	" "	9 weeks.	No trace of disease since discharged cured, March 7, 1891. No tinea in hair at time of writing.
XIX.	5 years.	1	1 in.	" "	4 weeks.	No trace of disease since discharged cured, Feb. 15, 1891. No tinea in hair at time of writing.
XX.	6 years.	1	1½ in.	" "	8 weeks.	No trace of disease since discharged cured, Feb. 15, 1891. No tinea in hair at time of writing.
XXI.	6 years.	2	1 in.	" "	4 weeks.	Removed from the institution after four weeks of treatment. No tinea in hair at time of discharge.
XXII.	7 years.	1	1 in.	" "	4 weeks.	No trace of disease since discharged cured, Feb. 16, 1891. No tinea in hair at time of writing.
XXIII.	4 years.	1	1½ in.	" "	3 weeks.	No trace of disease from date of discharge, Feb. 15, 1891, to March 31st, when patient removed from institution.
XXIV.	4 years.	4	1 in.	" "	14 weeks.	No trace of disease since discharged cured, May 1, 1891. No tinea in hair at time of writing.
XXV.	4 years.	1	3 in.	" "	4 weeks.	No trace of disease since discharged cured, March 2, 1891. No tinea in hair at time of writing.
XXVI.	5 years.	2	½ in.	" "	2 weeks.	No trace of disease since discharged cured, March 1, 1891. No tinea in hair at time of writing.
XXVII.	3 years.	2	½ in., 1 in.	" "	4 weeks.	No trace of disease since discharged cured, March 1, 1891. No tinea in hair at time of writing.
XXVIII.	6 years.	1	1 in.	" "	8 weeks.	No trace of disease since discharged cured, May 1, 1891. No tinea in hair at time of writing.
XXIX.	5 years.	1	½ in.	" "	2 weeks.	No trace of disease since discharged cured, April 10, 1891. No tinea in hair at time of writing.
XXX.	6 years.	5	½ in.	" "	10 weeks.	No trace of disease since discharged cured, April 15, 1891. No tinea in hair at time of writing.
XXXI.	5 years.	1	½ in.	" "	4 weeks.	No trace of disease since discharged cured, April 22, 1891. No tinea in hair at time of writing.

NOTES ON THE USE OF THE LEITER COIL IN THE EARLY STAGE OF MASTOID DISEASE.*

By GORHAM BACON, M. D.

ON looking over the standard works of otology and the literature published in this country, I find but little if any mention made of the employment of cold, whether by means of the ice-bag or the Leiter coil, in the early stage of mastoid inflammation, when the symptoms are very acute. On the other hand, in Europe, more especially in Vienna, the use of cold in such cases is considered by many of the greatest importance.

Politzer says: "The results which I have recently obtained by the use of Leiter's apparatus in cases of acute inflammation of the mastoid process have been most favorable, as the inflammation has completely subsided without local bleeding. I am convinced that by the timely use of this apparatus the termination of many cases in abscess and caries can be prevented."

According to Thomas Barr, of Glasgow, "this method of treatment (by cold) is now being adopted in his country. By this mode of treating mastoid inflammations at an early stage, and when the symptoms are very acute, great relief is usually obtained, the inflammation being not infrequently cut short and suppuration prevented."

It has been my practice for several months past, at the New York Eye and Ear Infirmary, to apply the Leiter coil in all cases of mastoid disease, if seen in the acute stage before suppuration has commenced. The pain is usually greatly relieved. It is highly important, however, to note carefully the pulse and temperature of the patient. If any rise in temperature occurs in spite of the application of the coil, although the pain is relieved to some extent, I should be inclined to adopt other means at hand, as I would not be understood to prefer this method of treatment to the exclusion of all others.

After the use of cold, I believe the next most important means at our command to be the local abstraction of blood by means of the scarificator and wet-cup. Should the latter not suffice to cut short the inflammation, a Wilde's incision should be made at once, or, if necessary, the mastoid should be trephined.

I have not as yet had an opportunity to try this method of treatment very extensively, but in all cases where the coil has been applied the results thus far have been most satisfactory.

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* Read before the American Otological Society at its twenty-fourth annual meeting.

STUDIES IN AEROTHERAPEUTICS.

By SAMUEL S. WALLIAN, A. M., M. D.,
NEW YORK.

II.

IMBIBITION AS A METHOD OF EXHIBITING THE GASES.

SEVERAL of the gaseous bodies have been at various times, and still are to a considerable extent, utilized as therapeutic agents. Since all the gases are aeriform at normal tension, the method of administration has very naturally and almost exclusively been by inhalation. Introduction by the stomach, by enemata, cutaneous absorption, or hypodermic injection, although resorted to with reported success by a number of experimenters, has not been studied with much thoroughness or interest, is therefore neither understood nor appreciated, and is not at all in vogue with the general profession. The object of this paper is to call attention to expedients which are at once simple and rational, and which will frequently be found of great value when other means or other methods of administration have proved infeasible or unavailing.

The two gases thus far most used by imbibition and cutaneous absorption are sulphureted hydrogen and carbon dioxide or carbonic acid.

The former has been utilized from time immemorial, in a general and unthinking way, through the medium of "mineral" or sulphur springs. It recently experienced a brief but brilliant and erratic boom at the hands of Bergeon and his enthusiastic imitators. It is still a fashion with a large class of chronic invalids who annually flock to those resorts the springs of which are more or less impregnated with this gas. It is the dominant quality of the waters of Aix-la-Chapelle, in Germany; of Barèges, in France; Abano, in Italy; and of Harrogate, in England. In this country sulphureted waters are generously distributed, sulphur springs being found in perhaps a hundred widely separated localities. The best-known springs of this character are found in Arkansas, Colorado, New York, Michigan, Ohio, and Virginia. But there is little danger of a sulphur-spring trust, since nearly every State in the Union boasts of something remarkable in this line, and new ones are being brought to light every season, as pioneers, tourists, and hunters further explore the mountains, plains, and by-ways of the great West.

The efficacy of this gas, which is always imbibed or cutaneously absorbed, since it can not be respired, is no doubt largely, if not wholly, dependent on its germicidal power. It is used both internally and externally, often in a very indiscriminate and irrational manner, by almost every sort of chronic invalid, whether suffering from herpes or hypochondriasis, and is prescribed in cases ranging all the way from rupia to rheumatism. Its results are most marked in specific skin diseases and in other forms of cutaneous eruptions, especially such as are of parasitic origin. It is also held to be efficient in acute and subacute as well as chronic rheumatism—which the microbe detectives now insist is strictly a germ disease—in certain forms of neuralgia and in various cachexiæ.

In selected and appropriate cases an intelligent course of sulphur-water bathing, if not always curative, is generally followed by good results. To secure the best results the baths should be supplemented by copious libations and by frequent and copious enemata, so that the system shall be rapidly and thoroughly permeated by the sulphur principle.

On the other hand, indiscriminate sulphur baths and sulphur-water drinking are never to be recommended; and those unreasoning mortals who see in every foul-smelling sulphur spring an imaginary fountain of youth are doomed to the same cruel disappointment which overtook the infatuated and self-deluded Ponce de Leon.

Carbon dioxide, in one form or another, has come to be almost as common as common water. It is made to aerate the baker's loaf and the housewife's sponge-cake; it sparkles in all our champagne, fizzes in soda fountains, and pops from the necks of bottles which are used to contain any and every form of effervescent beverage. The most noted spas of the world bubble over with it, and without it would soon be voted stale, flat, and unprofitable. So true is this that the older watering places, whose fountains have shown signs of exhaustion, have had to resort to artificial means of replenishing, both as to mineral salts and effervescing power. But for the timely aid of the chemists, it is hinted, our own Saratoga would have long since lost her original and chief attraction. Aided by carefully adapted and well-concealed art, there is no reason why the Hathorn, Congress, Columbian, and other gushers should not continue to flow and sparkle for ages to come.

Aside from or in addition to its grateful and refrigerant qualities, carbon dioxide in aqueous solution, administered through the alimentary canal or absorbed through the skin, has many therapeutic uses. Demarquay devoted an important portion of his extensive *Essay on Pneumatology* to a consideration of this gas as a therapeutic agent. He used it extensively as an external application to painful wounds and ulcers, and predicted a great future for it as a local anæsthetic, and as a regulator and promoter of reparative action in open wounds.

This gas also is irrespirable. It is, however, very soluble in water and other fluids, is the principal gaseous constituent of a majority of all natural waters, and enjoys almost an exclusive monopoly in the line of artificially aerated beverages. It is readily compressed to liquid form, and immense quantities of it are now supplied in this condition for charging fountains and aerating bottled beverages of every kind. Water containing an excess of it when imbibed has a grateful, soothing, refrigerant, and slightly exhilarating effect. It is doubtless absorbed to a considerable extent by the alimentary mucous membrane, but not in an unchanged condition, since, as carbon dioxide in the circulating fluid, it would only add labor to that already imposed on the organs and avenues of excretion, and hence would prove to be a source of septicæmia, and therefore a vital depressant rather than a tonic. On the contrary, the most delicate invalids may imbibe carbonated waters freely, not only with impunity but with a decidedly tonic and refreshing effect. It is therefore both plausible and rational to assume that in contact with the lining membrane of the digestive tract it is decomposed into its constituent elements, carbon and oxygen, and duly assimilated. It would thus supply two of the most vitally important elements constantly required for the sustenance and repair of the various fluids and tissues of the body.

The annual consumption of carbonated beverages is something enormous, and while it can not be said that all of them are conducive to health, or even harmless, from a sanitary point of view, it is evident that it is not the gas they contain which renders them obnoxious, but it is the addition of various crude ingredients which the gas is made to disguise and render tolerable to the palate.

Decomposed within the system, the two equivalents of oxygen, represented by the compound, are doubtless promptly taken up by the absorbents and carried directly into the circulation, where this element is so constantly in demand to maintain the integrity of the organism. The carbon also presumably contributes its usual office toward the business of structural repair and replenishment. Hence carbon dioxide, so deadly in its results when inhaled, is utilized to the fullest extent, and with entire safety, by the digestive apparatus.

Freiderichs has used it extensively, in the form of plain carbonated water, as a spray (from the nozzle of an ordinary siphon) in diphtheria, amygdalitis, pharyngitis, and other inflammatory affections of the throat and naso-pharynx, and believes that, in addition to its cleansing and tonic effects, it has decided antiseptic properties. It allays nausea and sometimes checks persistent vomiting. In certain forms of indigestion it is an excellent ally, favoring the action of other remedies and soothing irritable conditions. Its use in gaseous form, in conjunction with sulphureted hydrogen, as a remedy in phthisis, proved in the main a disastrous delusion; but the good results, which we must admit were honestly and genuinely noted in many cases, were chiefly due to the carbon dioxide introduced into the alimentary canal. Aside from some supposed parasiticidal effects, the sulphureted hydrogen might have been omitted from the mixture without in the least compromising the expected results, and certainly with great relief to the olfactory sense of the patients.

The effort to realize a specific for phthisis in these two gases, introduced in gaseous form, as already intimated, was found to be a dismal failure, as have been a hundred other schemes, including the pseudo-scientific blood-poisoning proposed by the German professor. Nevertheless, these malodorous inflations no doubt ameliorated certain complicating conditions of the principal malady, and thus gave color to the assumptions of their enthusiastic advocates. They failed to suffocate the bacilli, but perhaps destroyed some other and less important forms of parasitic life encountered in the alimentary tract.

Exhibited in gaseous form, experimental results show that neither of these gaseous bodies can be said to possess any practical therapeutic value. Administered in the form of aqueous solution, either is capable, within a limited range, of valuable applications and uses.

Nitrogen monoxide, or nitrous oxide, the popular dental anæsthetic, known also as "laughing gas," and just now extensively advertised under the name of "compound oxygen," resembles carbon dioxide to a certain degree, in being practically a non-respirable gas, also by being freely absorbed by water. Taken into the lungs, it is denied by most authorities that it is to any appreciable extent decomposed. Placed in an atmosphere of it, animals die in about the same time as when submerged in water. On the other hand, when imbibed in water, it produces none of its anæsthetic effects, which is *prima facie* evidence that, like carbon dioxide, it is decomposed by the action of the gastric mucous membrane, aided by the gastric and intestinal secretions, and is thus made to use its constituent elements, nitrogen and oxygen, in a free and assimilable condition. The released oxygen is eagerly appropriated by the system, and the nitrogen possibly contributes an available element toward tissue building. The quacks peddle out to their patients water very weakly charged with this gas and possibly some other flavoring matters. In this form it costs perhaps one cent per gallon, and is worth about the same amount as a medicinal agent. It is in conjunction with oxygen that this gas possesses most efficacy and has found most favor. Its economic and therapeutic value will therefore be referred to further on.

The use of oxygen as a rational and efficient therapeutic resource, applicable to a constantly enlarging circle of acute and chronic ailments, has recently come to be much more general than ever before in the history of medicine. This is an auspicious omen, since it indicates a steadily growing tendency on the part of medical inquiry toward natural remedies for diseased conditions, and the substitution of rational certainties for questionable uncertainties, of basic science for mystical speculation. The method of administration chiefly, almost exclusively, in vogue is by inhalation. Very little has been said or published concerning its introduction into the system by other avenues and methods—as stomachal, rectal, and cutaneous absorption; yet these avenues are always feasible or available, even when, from syncope, coma, narcosis, or exhaustion, the respiratory method is either of little avail or entirely out of the question. Again, there is an important class of cases in which stomachal and rectal administration is specially indicated—such as gastric catarrh, nausea, vomiting, and gastric irritation of various kinds; as also when from disease or pulmonary œdema the respiratory capacity is very much interfered with. There are many patients who can not, and still others who will not, inspire with any freedom or thoroughness. In these cases, and in many others in which there is no absolute necessity for recourse to these methods, oxygen may be promptly and effectively administered by means of water or other liquid charged with this gas under pressure and used in the same way that carbonated beverages are now utilized. Water at normal tension does not absorb oxygen gas as freely as it does either carbon dioxide or nitrogen monoxide; but distilled water may be charged with it, at a pressure of eight or ten atmospheres, which process affords an excellent product.

That the use of oxygen is steadily increasing in spite of the great amount of quackery vaunted in its name, and in spite of the prevailing carelessness in its preparation and general ignorance as to its real province, is evidenced by the rapidly increasing demand which has grown up in this country within the past five or ten years. It has been estimated that in New York city alone the rate of consumption of this gas for medical purposes at the present time exceeds a million gallons per annum. And when its real value as a remedy is fully realized by the whole medical fraternity, doubtless more of it will be prescribed in a week than is now used in half a year.

In the language of the *Medical and Surgical Reporter:* "There can be no doubt that it is an agent of great value, because its application rests on a sound physiological basis; that it sometimes disappoints in diseases in which it seems to have established a permanent reputation is quite true; but there is reason for believing that a great deal of this may be due to faulty administration." The same journal cites in detail the interesting and convincing experiment in connection with the heart of a frog, acted upon by oxygen gas, after removal from the body. This experiment is one of the most decided proofs of the revivifying and tonic capabilities of oxygen which could possibly be desired. It is essentially as follows: The heart of a living frog is excised. For some minutes it continues to beat with force and regularity. Gradually its power wanes, its color deepens, its contained blood turning more and more purple until it is almost black. At the end of twenty to thirty minutes the blood is thoroughly carbonized and the pulsations cease altogether. If now the blood be removed from the organ, briskly agitated with pure oxygen, and quickly returned to the same heart, the latter immediately resumes its rhythmic movements as vigorously as at the beginning of the experiment. This process may be repeated again and again with the same heart, which will retain this property of physiological irritability for as much as five or six hours, or even longer.

It is therefore only necessary to supply a fresh increment of oxygen to the blood whenever there is a tendency to stasis or a lack of respiratory vigor or capacity, in order to tone up the patient, no matter what his disease may be arbitrarily or scientifically named. And it is in case of respiratory inertia or incapacity that imbibition becomes a reliable and valuable auxiliary. The advantages of the stomachal administration of oxygen are not understood because they have not been studied. When they are fully realized, there can be no doubt but oxygenated waters will be made as common as Apollinaris or Vichy, and the results will be a happy surprise to the most visionary hygienist and health reformer.

As far as it has been tried in anæmic and dyspeptic conditions, in gastric malaise, nausea, and incessant vomiting, it has proved itself well-nigh that therapeutic impossibility, a specific. In hysteria, melancholia, nervous depression, and loss of appetite it has proved no less effective. But plain oxygenated water is comparatively tasteless, and notwithstanding its medicinal value and the fact that it has been repeatedly brought before the public and roundly advertised, it has never achieved a general or permanent popularity. Patients have not failed to note its beneficial effects, but they have taken it strictly as a medicine, just as they take Hunyadi or Pullna, and not at all with the enthusiasm and gusto with which they imbibe Congress or Vichy.

This want of decided or agreeable flavor, and of immediately exhilarating effects, on the part of imbibed oxygen, can be at once overcome by mingling with it an equal volume, or even one half its own volume, of carefully washed and chemically pure nitrogen monoxide, and charging distilled water with this mixture under a tension of eight or ten atmospheres. Water thus prepared acquires an agreeable flavor and a sparkling brilliancy which renders it at once pleasantly palatable, mildly exhilarating, and decidedly tonic—qualities which certainly are not combined in any similar preparation, and which place it in the van of hygienic and remedial agencies and table beverages. It is found to overcome the craving of dipsomaniacs for ordinary stimulants to such an extent that temperance advocates may find in it a potent and unexpected ally.

The charging of water with the two gases mentioned was suggested to a physician who was treating a patient suffering from dyspnœa and impeded respiration, as well as severe indigestion. Finding inhalation so onerous, the latter demanded to know why the remedy could not be administered through his stomach. The suggestion was followed by experimentation which demonstrated the foregoing facts. The combination of these two gases, oxygen and nitrogen monoxide, in water, under pressure, proves to be so immeasurably superior to plain oxygenated water, both as to flavor or palatability, and effect, that the results reported from the use of the latter, excellent as they were, are quite tame in comparison with those which have been accomplished by means of the mixture or compound water. In cases of the most aggravated nausea and persistent vomiting, after all other resources have been exhausted and the patient is fairly at death's door from inanition and exhaustion, it has not failed in a single instance, so far as reported, to check the trouble and put the patient in a condition to retain and digest appropriate nourishment. It has promptly corrected so-called "biliousness," and hence is valuable in "bilious," congestive, and "sick" headaches. It promotes the processes of digestion and assimilation in the most sensitive and delicate stomachs. It acts as a mild diuretic, relieving congested kidneys, and effectually neutralizing any tendency toward the formation of uric-acid deposits and renal calculi. In glycosuria or diabetes it comes more nearly to being a specific than anything heretofore tried, and in Bright's disease it promises more relief than all other measures combined. In case of the infectious diseases it acts as a reliable and effective prophylactic, destroying disease germs wherever it comes in immediate contact with them, and thus practically disinfecting the whole alimentary tract. Therefore it would seem that it is not unreasonable to hope that dysentery, typhoid fever, cholera, and yellow fever may be in the near future either wholly prevented or greatly modified by its free and timely use. It also supplies, in an immediately assimilable form, one of the most important elements required in the subtle process of hæmatosis, and thus promotes the morphological changes necessary for the formation of healthy blood in the anæmic, and in those who have been reduced in flesh or exhausted by overwork, nervous strain, severe surgical operation, excessive discharges, prolonged suppuration, or debilitating hæmorrhages. By its daily use thin people soon begin to gain flesh and the weak improve in strength. On the other hand, it acts as a check to corpulency, and will actually aid in reducing the flesh of those who suffer from a redundancy. Nor is this in the least contradictory, since both increase and reduction of flesh are accomplished by the same process —namely, *better oxidation.* In the language of Richardson: "In its remedial application, too, there is no complexity as to its *modus operandi.* In every instance that which it effects is oxidation; for spasm it is oxidation; for breaking up pus and exudations it is oxidation; for destroying infectious and fœtid organic secretions or excretions it is oxidation; for producing eliminative action it is oxidation."

Oxidation is the basis of all digestive and assimilative processes, and constantly tends to bring about and maintain an equilibrium of these processes.

Hence it presides alike over absorption and excretion, waste and repair; promoting action where it is wanting, checking it when excessive, and everywhere removing obstructions and purifying the natural secretions and circulating medium. It renders water both aseptic and antiseptic. No form of germ-life can long survive in the presence of free oxygen, which is the only natural microbicide yet discovered. Its universal use, as already indicated, would at once reduce the mortality from infectious, enteric, and zymotic diseases to a minimum.

Odier, of Geneva, used oxygenated water extensively, and pronounced it a powerful antispasmodic tonic, relieving spasm of the stomach promptly and alleviating the worst cases of hysteria, anorexia, indigestion, vomiting, flatulency, etc.

Demarquay found it invaluable in all atonic conditions of the stomach and bowels, in tardy convalescence from fevers, and especially after severe surgical operations, while Le Blond and others insist that it is a specific in diabetes.

It may be imbibed *ad libitum* with meals, between meals, or after meals, no unpleasant effects resulting from an excessive indulgence in it. Taken freely at bedtime, it often acts as a pleasant laxative. Irritable stomachs tolerate it, even when common water and all forms of both food and medicine are rejected, and, in addition to its medicinal value, it is asserted to be the most satisfying, palatable, and exhilarating table beverage yet produced.

The process of preparing the water is neither difficult nor complicated, and now that a process for extracting pure oxygen from the atmosphere, in unlimited quantities and at very low cost, has been made available in this country, the plant required is neither extensive nor expensive.

Rules for the Administration of Cocaine.—Dr. Magitot, in the *Repertoire de pharmacie* for August 10, 1891, formulates the following rules which should govern the employment of cocaine as an anæsthetic:

1. The dose of cocaine injected should be appropriate to the extent of the surface desired to render insensitive. It should not exceed in any case one grain to one grain and three quarters. Each dose should be restricted in large surfaces.

2. Cocaine should never be employed in cases of heart disease, in chronic affections of the respiratory apparatus, or in nervous subjects; and this exclusion applies also to the other anæsthetics.

3. Cocaine should be injected into the interior and not under the derm of the mucous membrane of the skin. This is the intradermic method of Reclus, which should be substituted for the hypodermic method. By this means the introduction of a substance into the vein is avoided and the risk of accidents therefore minimized.

4. The injections should always be practiced upon the subject in a recumbent position, and he should only be raised when the operation is to be performed upon the head and mouth, and then only after anæsthesia is complete.

5. The cocaine should be absolutely pure, since, as pointed out by Laborde, its mixture with other alkalies forms highly poisonous compounds.

6. Cocaine should be injected in divided doses, with a few minutes' interval.

7. Suspension of administration, or, as the author terms the method, "fractional injection," renders it possible to guard against the production of sudden symptoms of poisoning.—*Therapeutic Gazette.*

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NEW YORK, SATURDAY, OCTOBER 10, 1891.

THE TIME AND PLACE OF MEETING OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Dissatisfaction with the plan of holding the congress in Washington in September was freely expressed during the late meeting, and it continues to be expressed in conversation among those who took part in the meeting. Some of our contemporaries have declared themselves in accord with the feeling. But the most significant fact in the matter is that action has been taken by some of the component societies directing their representatives in the executive committee to oppose the holding of further meetings of the congress in Washington in September. It looks as if the feeling in question would prevail. So far as we know, nobody openly opposes it, and, if opposition to it is to come, it must come from those who are now silent. Everybody knows that Washington is a most appropriate place for such meetings, but also that it is a very uncomfortable place in September. If further meetings are to be held there, it must be in some other month. October or November would probably be the pleasantest, but a meeting in either of those months or, indeed, in any of the months from October to May, inclusive, is out of the question, for those of the members who are teachers in the medical schools can not be present, as a rule, and the constituent societies—and consequently the congress—are very largely made up of such men. We are informed that there are weighty objections to a meeting in June. Precisely what those objections are we do not know, but we fancy that they chiefly pertain to the supposition that visitors invited from abroad would find it impracticable to come to this country at that time. The presence of such men as came from Europe to attend the recent meeting is certainly very desirable, but the organization is explicitly named the Congress of American Physicians and Surgeons, and our opinion is that the interests of its own members ought not to be sacrificed to any yearning after whatever *éclat* may attach to the presence of distinguished members of the profession from abroad. If, however, there are other obstacles to a June meeting that prove insurmountable, the meeting should be held in July, August, or September—preferably in September; and that requirement, in the present temper of the members, will probably take the meeting away from Washington.

The question that will come before the executive committee is a knotty one. The great Eastern cities are all apt to be very uncomfortable in September—Washington does not stand alone in this respect—so that nothing remains but the summer resorts and a camp in the wilderness. Of the former, only Saratoga, Newport, and possibly Atlantic City have the necessary hotel accommodations, and it is doubtful if any one of those places has proper halls enough for the various societies to meet in. The matter is one that deserves serious and deliberate consideration during the two years or more that will elapse before a decision will have to be made. At present, we confess to a preference for having the meeting held in Washington in June.

A PARASITIC DISEASE SIMULATING TUBERCULOSIS.

In *Public Health* for September there is a review of reports by Du Casal and Vaillard, of the Institut Pasteur, on a parasitic disease of man which is transmissible to rabbits. The case first to come under notice was in the person of a French naval surgeon aged thirty-three years. He was an exceptionally powerful and muscularly developed man and very fat. He was taken ill with diarrhœa, headache, and fever, followed by insomnia, jactitation, and tympanites. He became progressively worse, and on the sixth day after taking to bed presented the aspect of a patient in the algid period of cholera; death occurred that evening. At the necropsy the peritonæum was found studded with yellow nodules, which were only slightly prominent and of the size of a millet seed and larger or up to that of a lentil. Each nodule contained a cheesy, yellowish-white, fatty substance. Subacute localized peritonitis had existed. The pancreas had numbers of nodules, while the liver had one larger than the rest. These nodules all contained hosts of bacilli—short, mobile rods, scarcely longer than they were broad, which were susceptible of pure culture. The bacilli were both isolated, joined in pairs, and combined in chains. When separate or in pairs, they are endowed with a very lively movement, both of locomotion and of oscillation; the long chains have only "a long wavy ominous motion." Inoculation of guinea-pigs was without effect, but the cultures were pathogenic to rabbits and mice. Mice died within sixty hours, showing a blood infection by this peculiar bacillus. In rabbits large injections produced rapidly mortal disease, characterized by paresis and fœtid diarrhœa. Lesser doses produced a chronic affection, with diarrhœa, transitory wasting, and multiple tumors, resembling those described as occurring in the human patient. This disease was not necessarily fatal, and it even appeared to be compatible with a fair condition of health, provided the new formations, or tumors, did not attack any important organs. Du Casal and Vaillard conclude their report by the suggestion that this affection may be and has been confounded with tuberculosis. The verification of this proposition will involve the extension of bacteriological work into the post-mortem room in an increasingly large proportion of cases. The medical history of the patient, as given in the abstract, does not state that he had formerly been the subject of emaciation or other suspicious impairment of health, but, on the contrary, that he was of exceptionally robust appearance.

MINOR PARAGRAPHS.

SYPHILIS AND TUBERCULOSIS OF THE IRIS.

M. Gillet de Grandmont calls attention, in the *Mercredi médical*, to the difficulties of clinical diagnosis between tubercle and condyloma of the iris, apropos of a case observed in a woman, twenty-five years of age, who had her vision diminish without ocular pain, and presented a punctated keratitis, an obnubilation of the pupil by grayish deposits, a posterior synechia, two tumors of the iris, and two or three small granulations. The two large tumors were globular, grayish-rose-colored, prominent, and situated near the attached border of the iris. The situation of these tumors, their grayish-rose color, their multiplicity, the plastic exudations masking the pupil, the infiltration of the cornea, the existence of punctated granulations on the membrane of Descemet, and the absence of pain, all suggest tuberculosis of the iris, but the patient was presumed to be syphilitic and he considered the diagnosis of syphilis of the iris to be correct in spite of the external aspect of the lesion.

SEA-NETTLES.

In a recent annotation the *Lancet*, while drawing attention to the risks of sea-bathing during September, reminds bathers that salt water at this season of the year teems with the irritating swarms of the *Medusidæ*. The stinging filaments contained in the thread-cells of these animals are not usually capable of penetrating the human skin. Occasionally, however, they are in this respect very uncomfortably potent, and a bather who recently came in contact with sea-jelly was obliged to send for medical aid in order to obtain relief from the smarting contact. As a rule, those *Medusæ* which are uniformly bluish-white in color are inert, while those of smaller size and with reddish-brown tentacula possess well-marked irritant properties. A generally refrigerant and laxative course of treatment, combined with warm bathing, will usually relieve the pain produced by contact with this nettle of the sea.

THE ACTION OF MOLTEN ZINC ON THE CORNEA.

Vratch for April 4th quotes Dr. Kramsztyk, who has reported a case in which zinc at the melting point came in contact with the cornea without injuring the latter. The author was called to see the patient, and found particles of the metal adhering to the cornea. He removed them, and the cornea beneath appeared perfectly smooth, only there was slight injection of the conjunctival vessels. It is supposed that the melting metal cooled off as soon as it came in contact with the eyeball, and that the vapors formed from the tears in the presence of the hot metal served as a protecting layer to the cornea.

THE NEW VOLUME OF THE INDEX-CATALOGUE.

The twelfth volume of the *Index-Catalogue of the Library of the Surgeon-General's Office, United States Army*, issued a few weeks since, carries the vocabulary from *Reger* to *Shuttleworth*, and contains the fifth addition to the alphabetical list of abbreviations of titles of medical periodicals. The volume furnishes continued evidence of the assiduity and exactness with which this great work is carried on.

ITEMS, ETC.

The Congress at Halle.—The Congress of Naturalists and Physicians began its sessions at Halle, Saxony, on September 21st. It was presided over by Professor William His, of the University of Leipsic. Twelve hundred delegates were present, of whom two hundred and eighty were women.

The American Microscopical Society is now the name of the organization formerly called the American Society of Microscopists.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 6, 1891:

DISEASES.	Week ending Sept. 29.		Week ending Oct. 6.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	62	20	59	8
Scarlet fever	66	5	42	8
Cerebro-spinal meningitis	3	5	4	2
Measles	40	1	34	7
Diphtheria	57	16	84	26
Small-pox	2	0	0	0
Erysipelas	0	0	0	0
Varicella	3	0	2	0
Pertussis	2	2	2	0

The Journal of Balneology.—It is announced that Dr. A. N. Bell, of Brooklyn, Dr. Frank Woodbury, of Philadelphia, and Dr. George H. Rohé, of Baltimore, are to be the editors of this journal, in the departments of balneology, dietetics, and climatology, respectively.

A Medical Consul.—Dr. Jeremiah Coughlin, of Brooklyn, has been appointed by the President to be secretary of legation and consul-general of the United States at Bogotá.

The Illinois State Board of Health.—Dr. Frank W. Reilly, of Chicago, formerly a surgeon in the Marine-Hospital Service, has been appointed secretary.

An Honor to a New York Physician.—The President of the United States of Venezuela, at the instance of the Federal Council, has conferred the order of the liberator, class iii, on Dr. Austin Flint, of New York.

The Harlem Medical Association.—The programme for the last meeting, on Wednesday evening, the 7th inst., included the reading of a paper on The Longevity of the Tubercle Bacillus; a Convenient and Rapid Method of coloring the Organism; the Effects of some of the Stronger Antiseptics on its Chemical Decomposition, by Dr. Henry Heiman.

The Lackawanna (Pa.) County Medical Society.—At the next meeting, on Tuesday evening, the 13th inst., Dr. T. W. Kay will read a translation of a French article on The Surgery of the Lungs.

Changes of Address.—Dr. S. T. Armstrong, to No. 166 West Fifty-fourth Street; Dr. W. B. Coley, to No. 18 East Thirty-second Street; Dr. William S. McMurdy, to No. 332 West Fifty-first Street; Dr. J. Fulton Purdom, from Mitchellsburg, Ky., to No. 910 West Jefferson Street, Louisville.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending October 3, 1891:*

Turner, Thomas J., Medical Director. Placed on the retired list, September 21, 1891.

Hall, J. H., Surgeon. Placed on the retired list, September 25, 1891.

Boyd, J. C., Surgeon. Ordered to duty on Naval Medical Examining Board.

Society Meetings for the Coming Week:

Monday, *October 12th:* New York Academy of Medicine (Section in Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); Lenox Medical and Surgical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

Tuesday, *October 13th:* New York Medical Union (private); Medical Societies of the Counties of Albany (annual), Chenango (tri-annual), Greene (semi annual—Cairo), Jefferson (quarterly—Watertown), Oneida (quarterly—Utica), Ontario (quarterly), Rensselaer, Schoharie (semi-annual), Tioga (quarterly—Owego), and Wayne (semi-annual), N. Y.; Newark, N. J., and Trenton (private), N. J., Medical, Associations; Lackawanna (Pa.) County Medical Society; Baltimore Gynæcological and Obstetrical Society; Bergen, N. J., and Cumberland (semi-annual), N. J., County Medical Societies; Litchfield Conn., County Medical Society (annual).

Wednesday, *October 14th:* Mississippi Valley Medical Association (first day—St. Louis); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Societies of the Counties of Albany and Allegany (quarterly), N. Y.; Tri-States Medical Association (Port Jervis, N. Y.); Pittsfield, Mass., Medical Association; Franklin (quarterly—Greenfield), Hampshire (quarterly—Northampton), Middlesex South (Cambridge), and Plymouth (special), Mass., District Medical Societies; Kansas City Ophthalmological and Otological Society; Philadelphia County Medical Society.

Thursday, *October 15th:* Vermont State Medical Society (first day—Montpelier); Mississippi Valley Medical Association (second day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

Friday, *October 16th:* Vermont State Medical Society (second day); Mississippi Valley Medical Association (third day); New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society (annual).

Saturday, *October 17th:* Clinical Society of the New York Post-graduate Medical School and Hospital.

Letters to the Editor.

SPECIALIST AND GENERAL PRACTITIONER.

Galveston, Texas, *September 13, 1891.*

To the Editor of the New York Medical Journal:

Sir: I should like to ask Dr. Herzog by what process of reasoning he arrives at the conclusion that specialists are men "who know only one department of medicine," and why the case he so skillfully diagnosticated and treated could not have been diagnosticated by a neurologist, oculist, aurist, etc. In addition, will he explain how he could have made his diagnosis and applied treatment had he not been able to draw from the work of these specialists? All will agree that the best specialist is he who brings to his study and work in "one department of medicine" a broad, liberal education and a general practical experience. Such men, though limited in their field of work, are not apt to be narrow in their judgment of their fellows. Woe be to the practitioner or specialist who becomes wedded to one idea. Instead of "the seed becoming a tree and bearing fruit," the natural process will be reversed and he and his patients will rapidly go to seed. R. C. Hodges, M. D.

Corinna, Me., *September 26, 1891.*

To the Editor of the New York Medical Journal:

Sir: In your journal of September 19, 1891, under this heading some rather startling propositions are set forth. It is there seriously, and presumably in cold blood, proposed that every practitioner of medicine shall make himself expert in all those departments which are now considered specialties. It is said that no man is well equipped unless he is proficient in ophthalmology, otology, laryngology, neurology, gynæcology, and other branches. It does not require a violent imagination to picture the triumphs of the general practitioner or the confusion and distress of the "narrow specialist" which would ensue forthwith upon the realization of the conceptions of your correspondent.

In those "halcyon and vociferous" days the degraded specialist will neither merit nor receive any sympathy, for has not, for lo these many days, crowded the general practitioner to the wall? Has he not taken the substance and left to his "general" brother only the shadow? We are told that this medical millennium may be brought about "by devoting our time and study not only to internal medicine, but to all other departments."

Some frightened specialist will be sure to say that life is too short and the human mind too limited to enable anybody to succeed in "mastering all these specialties."

Some oculist will tell us that years of practice are needed to teach one to read aright the pictures which the ophthalmoscope makes visible—not to speak of that delicacy of touch which may at times be of value in operations on the eye. Some neurologist, made impudent by the big fees he has harvested, will set forth the contention that a lifetime is too short to enable one to master his specialty. He will insist that anthropology, evolution, heredity, comparative anatomy, and many other subjects are necessary preliminary studies. He will even tell you that any definite conception of the anatomy of the nervous system requires years of faithful work. Other specialists in other departments will present more or less plausible arguments going to show that our writer's ideas can not be realized. These tissues of sophistry will not, it is hoped, deter anybody from "mastering all these specialties."

These clonic convulsions of decapitated specialism will avail nothing in the final readjustment now about to take place. What general practitioner will not rejoice when he is spared the humiliation of sending his patients with cataract to the oculist, when he can to-day work out some difficult problem in cerebral localization and to-morrow proceed to shell out successfully the tumor which caused the symptoms? Then will hysterectomy lose its terrors, and astigmatism will no longer make us afraid. Much more might be said in support of the ideas of your correspondent; but it may perhaps be wiser to "devote time and study" to "mastering all the specialties."

O. H. Merrill, M. D.

CANNABIS INDICA.

Brooklyn, *September 19, 1891.*

To the Editor of the New York Medical Journal:

Sir: Your recent editorial anent *Cannabis indica* prompts me, from an experience special, unique, and, to some extent, unequaled, to confirm the opinion of Dr. Suckling as to its value as an anodyne and hypnotic. In a note, lately received from the doctor, he said: "I have used Indian hemp as a hypnotic and also as an anodyne. I find it most useful in both ways." In a paper, *Cannabis Indica as an Anodyne and Hypnotic*, read by the writer at the last meeting of the Medical Society of the County of Kings, attention was called to this topic in detail. I quite agree with Dr. Suckling that hemp deserves a better repute than it now has with most physicians. Three causes, in my opinion, have led to its present disuse. First, a fear of its toxic effect. This is groundless. Hemp is not a poison. There is no death on record. Wood says: "Even the largest doses do not compromise life." Peculiar effects sometimes seen—often peculiar to the *patient*—may alarm a novice, but alarming symptoms are not always dangerous symptoms, and, quoting again from Wood, "Hemp is not a dangerous drug." I have known a half ounce of the fluid extract taken at once, with no effect other than relief of pain and a desire to sing. My experience, compassing more than a decade, many cases, and hundreds of doses, ranging from twenty to sixty minims of the fluid extract, has never brought any anxiety along toxic lines. A second cause of limited use is feeble or inert products, and I fancy this has been the largest factor. Hemp is notoriously uncertain, but—once a good specimen—it is often of great value. It should never be called worthless till a *full* trial with a *good* extract proves it. A recent experience notably shows the lack of some extracts. Pills prepared by two reputable firms were given to a female morphine-eater as an anodyne, in increasing amount—beginning with a half grain—till it reached *ten grains* at *one dose*, with no result other than an easier, drowsy feeling, and within the last two hours I gave this patient *twelve* grains at once, with only a slightly increased effect. Of course, some of this lack of effect was due to the peculiar tolerance of other nervines shown by opium, chloral, and cocaine devotees, as years ago I noted, but the major part may be safely set down to a poor product. Wood thinks the foreign extracts best. Squibb's fluid extract, mainly, and Parke, Davis, and Co.'s normal liquid have served me well. Of the solid extracts, McKesson and Robbins's has been best.

A third cause is too timid dosing—with failure and consequent disuse. I am convinced that the dose of the books is often too small. For instance, Wood, in his latest édition, advises one minim of the fluid extract at a dose! Surely few morbid conditions, save in very impressible subjects, would give way to such dosing. The only true plan is: a good extract and then push it to full effect.

My doses have been large, as stated, to men and women alike. They are *over-large* and unneeded for the *non*-narcotic case, but they prove hemp harmless; and the opinion of most neurologists is that, once a drug of this kind is demanded, it is better to give one large dose than several small.

Were the use of Indian hemp limited to migraine, in which there is a consensus of opinion as to its value—its worth, direct and indirect, would be greater than most imagine. It is not only calmative, but curative. It will often promptly end an attack, and, if continued in semi-daily doses for weeks or months, it will in many cases, especially in the young, blot out this neurotic taint. This is its direct effect for good. Indirectly it would save many a patient from the sorrow and pain of an opium bondage. Hemp has not a baneful effect like the poppy. A medical man I know took it in full anodyne effective doses each day for two years, and quit it without trouble. Such a record, it is safe to say, could not have been made with opium.

Dr. Suckling wrote me: "The young men rarely prescribe it." To them I specially commend it, for they are too often prone to forget remote results of incautious opiate giving, and so "rush in" where their elders—warned, it may be, by a hapless experience—dare not "tread." Better by far a less brilliant—only because less speedy—result from hemp than to imperil a future, it may be for life, by that modern mischief-maker, hypodermic morphine.

One whose professional life is brought in daily contact—as for years mine has been—with those whose lives have been blighted by the poppy, can and should speak feelingly and forcibly on this subject, for it compasses more sorrow of mind and body than the world will ever know.

J. B. Mattison, M. D.

ARSENITE OF COPPER.

Trenton, N. J., *September 29, 1891.*

To the Editor of the New York Medical Journal:

Sir: Led by some glowing accounts of the efficacy of arsenite of copper in frequently repeated minute doses as a remedy for diarrhœa and its attending symptoms, I have used it extensively, and, as far as I can see, without any results. I have added it to nearly all diarrhœa mixtures for the last two years, without being able to perceive any increased efficacy in the prescriptions.

Among all the cases where it was tried, I will detail a few representative ones where there was reason to expect something.

1. A case of diarrhœa of long standing in a man having cirrhosis of the liver. Here I thought it would prove to be just the remedy I wanted, judging from the reputation of arsenic and copper separately in cirrhosis. Sometimes it was taken in the recommended small doses every ten minutes, for days at a time, and then in one-hundredth-grain doses, three times a day, without any apparent effect. That the diarrhœa was amenable to drugs is shown in its cure with tincture of iron.

2. A patient with chronic diarrhœa, having two or three loose passages early in the morning, was not benefited by a long trial of one one-hundredth of a grain, taken three times a day, and smaller doses oftener on Sundays (when the patient's duties would allow). Nitrate of silver and bismuth cured this case. Another similar case was that of a debilitated lady, who, after trying the arsenite for a while, was cured with Huxham's tincture and bismuth.

3. A woman having a cancer of the face and "weak bowels," who, in spite of the fact that she takes three teaspoonfuls of MacMunn's elixir daily, is never constipated, and often has severe attacks of diarrhœa. As she is a believer in homœopathy and dislikes any medicine that can be tasted, I have been particularly anxious that the arsenite should help her. She has taken it "as directed" and otherwise, with absolutely no benefit.

4. In attacks of cholera morbus I have never seen it relieve the cramps or the diarrhœa. Dr. Dunham, of this city, and Dr. Price, of Imlaystown, both tell me it fails with them in these cases where they have tried the sample tablets sent out by enterprising manufacturers, according to the directions kindly furnished with the sample.

5. Frequently, after the acute diarrhœa of cholera infantum has been checked, I have prescribed it to still further check the bowels and for its "alterative and tonic" effects, without results. I have used it extensively in these cases because it is so easy to administer to children.

6. In cases of typhoid fever with moderate diarrhœa I believe it is of no service; never have I seen the diarrhœa checked by the drug. In severe cases I admit I have not had sufficient confidence to warrant a trial.

7. Lately in a case of diarrhœa, where opium could not be tolerated, I tried the arsenite faithfully for three days without any improvement, the patient getting worse all the time.

I think these cases, representing my two years' use of the preparation, prove it to be none other than a chemical curiosity, possessing feeble properties in the doses recommended, if any at all.

In using such preparations we should remember the tendency all diseases have to limit themselves, among which diarrhœas are no exception.

H. G. NORTON, M. D.

Proceedings of Societies.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Second Triennial Meeting, held in Washington, on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

THE President, Dr. S. WEIR MITCHELL, of Philadelphia, in the Chair.

(*Concluded from page 358.*)

Dr. A. T. CABOT, of Boston, thought that it was important for surgeons to remember that every operation was an experiment in bacteriology and that the processes of wound-healing should be studied as such.

Mr. THOMAS BRYANT, of London, thought the papers presented were difficult of discussion. Still, it was pleasant for the practical surgeon to witness the line of work and note the important facts demonstrated by the bacteriological investigators. While he took every possible interest in this work, and fully accepted the idea that these toxic agents had an immense influence on wound progress, still it must be remembered that we were at present very much in the dark as to exact processes. It should be borne in mind that, if the bacteria formed the seed, the question of the soil in which it might be sown could hardly be of less importance. He thought the profession was hardly giving this part of the matter sufficient consideration. If it was a fact that all these pyogenic germs exerted such an overwhelmingly baneful influence, how was it possible for patients with open wounds ever to recover? And yet it was a fact that they did so. The truth was that, if the soil was not good for the growth of the seed, the seed would die. Therefore the question of the special preparation of the patient, where possible, was one of the greatest importance. Proper attention to the condition of the kidneys was as imperative as any local preparation of, or attention to, the site of a wound. If the great excretory organs were not doing their work well, no care of the wound would insure a good result. On the other hand, granting that the soil was good, strong, and healthy, and the vital action physiologically accurate, the question of bacteria was of lessened import. Still, something must be done with these bacteria. He was a believer in irrigation, not during the whole period of an operation, but certainly immediately after it. He was in the habit of using iodine water, employing it in the strength of a light sherry-color in the case of clean wounds and a dark solution for dirty ones. In addition to its antiseptic properties, this solution acted as a styptic. He used dry dressings, as he considered the principle good and did not think it mattered what the dressing was. At every operation a certain amount of damage was done to the tissues, and this would be followed by some molecular death. Whenever this occurred there must be subsequent decomposition. This was the point of danger. If these chemical changes took place in the wound there would be trouble. Therefore it must be kept clean for forty-eight hours at least. He always regretted to find great drainage-tubes passed completely through joints and other large cavities, and believed that this procedure was a great disadvantage. A small drainage-tube, from the most dependent part of a wound, was all that was wanted, and its use for forty-eight hours was sufficient. After this, rest, properly adjusted pressure, and immobilization would insure the desired result.

Mr. JOHN CHIENE said that he did not quite agree with Mr. Bryant. He thought that the work of the bacteriologists was of the utmost practical importance, and that the results of their investigations were the data upon which the surgeon must depend for the success of his daily work. It was true that, yielding to the invincible force of general opinion, he had given up the spray, but he was rather sorry for it. Since then he had been very careful in telling his students that they should constantly wash their hands during operative work. Now a worker in the laboratory had come forward and demonstrated the special importance of this, and even shown that there were micro-organisms situated deep in the epidermis which were liable to come to the surface during an operation, such as the *Staphylococcus pyogenes albus*.

Dr. A. G. GERSTER, of New York, spoke in scathing terms of the incongruities in the work of men who were for the most part not only accurate in carrying out the prescribed aseptic and antiseptic technique, but perfectly sincere in all they did. For example, it was a very common thing to see operators, after a most elaborate antibacterial toilet, scratching their noses or passing their hands through the beard or hair of the head. How supremely ridiculous it was, after preparations the most minute in the direction of securing immunity from infection, to see the surgeon make the first incision and then clap the knife into his mouth. The speaker had been giving special attention to this point, and had been surprised to find to what an extent these personal tricks of habit were allowed, both here and abroad, to vitiate scientific preparations to insure freedom from septic influences.

The Late Manifestations of Syphilis.—Dr. P. S. Connor, of Cincinnati, in opening the discussion on this subject, said that syphilis more than any other disease, not excepting tuberculosis or cancer, was the common meeting ground of physicians, surgeons, obstetricians, specialists, pathologists, and sanitarians. Modified as it was by transmission through a dozen generations, it was still a dreadful and dreaded ill. Were there only the early lesions, syphilis would take a place among the minor ills, and this was the history in the large proportion of cases. Probably in three or four out of five of the acquired cases the disease was short-lived and did but little damage. There were, however, no means of saying in any individual case that, in a few months or years, the disease would be eliminated. Those syphilitic by inheritance suffered from the late lesions in a far greater ratio than the patients who acquired the disease. There was no sharply defined line between the early and the late constitutional symptoms. Speaking generally, the late lesions were neo-formative, the early ones hardly ever so; so that the gumma was the sign and seal of the tertiaries. Further, they were not communicable. As a rule, they were quietly developed. No region or organ was exempt from invasion, with resulting new growths. Of most frequent occurrence were the affections of the bones and of the nervous system. The lesions of bone might be single or multiple. The symmetrical involvement of bones was exceptional. Liquefaction was rarely observed, and suppuration was only an accident. As ordinarily seen at the present day, extensively destructive and deforming bone inflammations were almost confined to the head and the nasal regions. The reason of this was probably the exposed position of the bones, the thinness of some of them, the abundance of small vessels, and the intimate fusion of mucous membrane and periosteum. In the adult and in acquired cases there was seldom difficulty in recognizing the specific character of the lesion. Though a large proportion of chronic bone and joint disease in the child, the adolescent, and the young adult was tubercular, yet the cases in which it was syphilitic were by no means few. This might be recognized by the location of the disease, by recognition of traces on the cornea, the teeth, and the skin, by application of the therapeutic test, and, when practicable, by inoculation. The most frequent and the most dangerous lesions were those of the nervous system. Mr. Horsley, speaking of cerebral gumma, had said: "Medicinal treatment in no wise cures, and only very temporarily alleviates, the trouble. . . . Excision offers the only chance for the patient." Was this the fact? Had not more than temporary alleviation followed the use of the iodides? However great the advances of brain surgery in the last few years, would not the outlook of the syphilitic be worse than now if only in the removal of the gumma could be found a chance of recovery? The affections of motion, sensation, and intellection were frequent in the order given. The first at some time and in some degree was present in every case. Hysteria might mimic syphilis. It was infrequent in men, while brain syphilis was rare in women. In brain syphilis, paralysis was more common than convulsions. Sensation frequently remained unaffected. Disturbance of intellection was almost necessarily associated with any brain lesions. In certain cases, although rare, marked motor, sensory, and intellectual disturbance occurred suddenly and together. Ordinarily, after sleep, the patient was found in a state of stupor from which it was possible to rouse him partially. The muscles were relaxed, the pulse-rate was lessened, the breathing was slow, and the temperature was subnormal. Under mercurial treatment, promptly and persistently maintained for many months, relief and even permanent cure might be expected and secured.

Spinal lesions were of infrequent occurrence. Exostoses of the spinal canal might occur and neoplasms develop. There might be pain and paralysis affecting different parts, according to the location of the lesion. A question of much interest was that of the causative relation of syphilis to locomotor ataxia That the majority of ataxics had had syphilis could not be questioned. Tabes was certainly not of true gummatous origin, and the scleroses could not be regarded as the result of the diffused formation so often found in the cerebro-spinal axis. Antisyphilitic treatment generally failed to cure or even to retard the evolution of the symptoms.

There were many things about late syphilis that deserved careful study. What was the explanation of the long years of intermission, with the after-development of grave functional and organic disturbance? Where had the disease been lurking all these years? What were the relations of syphilis to other diseases and to injuries? Pre-existing tubercular disease rendered probable a severer and often a more rapid syphilitic course. To the "strumous" individual the specific infection was more dangerous than it was to others. That specific lesions might become tuberculized had been proved, but only rarely did the tubercle bacillus find a nidus in and about a syphilitic new formation. Syphilis was not likely to be inoculated on a person suffering with cancer, and, if it were, there was no good reason why each of the diseases should not go on in its natural way. On the other hand, cancer might, and not so very rarely did, attack an area in which there had long been specific thickening and induration, as in the chronic leucomata of the tongue. Once in a while a gumma underwent cancerous degeneration, oftener when situated in the tongue than elsewhere. The local affection, no longer amenable to specific treatment, went on steadily from bad to worse. In certain localities, especially in the breast, a gumma might readily be mistaken for a cancer. If syphilitic growths did not become sarcomatous, they often resembled sarcomata, and many reported successful operations for the malignant affection had been really removals of gummata.

As a rule, the wounds of syphilitics, when the disease was in a latent stage, healed as promptly as in other cases, although union might be delayed or even prevented until after the patient had been brought under the influence of the antisyphilitic remedies. This was less true of wounds of the soft than of the hard parts, as in fractures, where at times false joints would form in spite of the most judicious treatment. When the specific lesions were in the process of evolution, the chances of interference with proper repair were not few, and no operation should be done at this time which could be postponed. Indeed, at any time before doing an operation the success of which depended on primary union it was well to keep the patient for several weeks under the influence of the iodides and mercurials. Very rarely did any wound become actually syphilitic. In one who had had the disease, although there had been no manifestations for years, any traumatism might be the starting-point of extensive specific lesions.

In very many cases of aneurysm in persons under forty years of age the lesion might be consequent on syphilis. Death from acquired syphilis was rare. In its inherited form the disease was a very grave one. Four fifths of the pregnancies of syphilitic women terminated prematurely.

Dr. ABNER POST, of Boston, said that in speaking of syphilis he did so from the standpoint of the clinician and student and not from that of the pathologist. He called special attention to what was known as late hereditary syphilis. This related to those who had inherited the disease, and who only after a lapse of years showed symptoms corresponding to the tertiary symptoms of acquired syphilis. The later forms of acquired syphilis were not necessarily a part of the case. The so-called late lesions occurred much earlier in the history of the disease than we were in the habit of thinking. After the third year the chances of a recurrence grew steadily less. As a prevention of late symptoms, early treatment by mercurials must be ranked high, but no method would allow us to promise a cure, or absolute immunity from subsequent attacks. In late hereditary syphilis the part played by the lymphatic system was great. Cutaneous lesions were second in frequency. to the lesion of the nervous system in late acquired disease. Diseases of the bones were next referred to. A difference between tuberculosis and syphilis lay in the preference of syphilis for the long bones and their shafts, while tuberculosis attacked by preference such bones as those of the wrist and ankle. Diseases of the joints were at times undoubtedly the result of syphilis. As to the intestinal and gastric symptoms in syphilitics, it was fairly well established that very serious lesions of the gastro-intestinal tract took place. As one of the possible causes of disease of the ileo-cæcal valve, syphilis must be given a certain amount of consideration. In diseases of the nervous system there was a large field practically unexplored in congenital syphilis. An interesting question was, How much influence should a negative history have in a doubtful case? There were many instances in which the existence of syphilis was not known by the patient. Every prognosis must be a matter of special consideration. It was the persistence of the damage, and not the specific lesions, that caused the continuance of the symptom. There was something to be deduced in the matter of treatment. Antisyphilitic treatment had great power over the active process of late lesions, but it was powerless to restore the tissue already destroyed. The attempt to destroy a syphilitic tertiary sore was in general futile. The late lesions of inherited syphilis were as readily controlled as those of the acquired disease. The amount of iodides that might be administered was very large. In regard to the results of treatment as an aid in retrospective diagnosis, too much value must not be placed upon this element in doubtful cases, for mercurials and iodides did have some influence over tuberculosis.

The study of syphilitic phenomena was a necessity of medical progress. The possibility of syphilis rendered uncertain the diagnosis of tuberculosis, cancer, and other malignant forms of disease. We needed the most careful clinical studies, and hospitals specially devoted to syphilis, and we ought to make its study obligatory.

Fibroid Processes (Chronic Interstitial Inflammation, Sclerosis); their Pathology and Ætiology; with Special Reference to the Influence of Diathesis and Heredity.—Dr. A. L. LOOMIS, of New York, in the course of a paper with this title, said that the terms sclerosis and cirrhosis were used with such refreshing disregard of their pathological relations and upon such a purely anatomical basis that their employment as exact terms was to be avoided, and they should be retained solely to indicate commonly accepted gross conditions.

In considering the ætiology and pathology of "fibroid processes" he would indicate the subject as divisible into: (1) A classification upon a pathological basis of fibroid developments; (2) the determination of the point at which physical forces were productive of the first organic change in the series which terminated in fibrosis; (3) the determination of the consecutive order of changes in such a series; (4) an estimation of the dynamic relations of diathesis to both the cause and the established process.

Histologists recognized two sources of origin of connective-tissue fibers—the fixed connective-tissue cell and the leucocyte. From the first, fibrous production was by division, multiplication, true hyperplasia, a local process that was physiological in character and pathological only in degree. In the second stage the earliest change was also pathological solely by degree, but was constitutional instead of local, manifesting itself by a similar cellular hyperplasia, but of the white cells. This, as well as the succeeding stages of cell aggregation and organization, was characteristic of inflammatory processes. We should, therefore, denominate these two forms of "fibroid processes" as (1) the hyperplastic, which might be atrophic or hypertrophic, and (2) the inflammatory, without attempting to lay down authoritative definitions.

The pathogenesis of the two forms of fibrosis resulting from the before-mentioned cellular metabolism were: (1) In the hyperplastic form—(*a*) diminished nutritive supply, not reaching the point of necrosis; (*b*) parenchymatous atrophy; (*c*) nuclear proliferation; (*d*) connective-tissue hyperplasia; or (2) in the hypertrophic variety, simple fibrous hyperplasia under direct stimulation. In the inflammatory form, (*a*) parenchymatous degeneration or necrosis; (*b*) constitutional influences producing leucocytosis; (*c*) local attraction by the products of tissue change (positive chæmotaxis), causing cellular infiltration, followed by organization.

If the assumption was correct that the transition from ætiological force to pathological processes was first manifested by a disturbance in tissue nutrition, the causes of the various fibroses would necessarily be found within two classes. One of these would be a force acting directly to stimulate nutrition in the connective tissue; the other depressing nutrition in parenchymatous tissue.

It could not be denied that fibrous growths occurred under conditions which seemed to preclude the possibility of an inflammatory action in their production, but the similarities in the cellular forms of all fibroses and the certainty with which inflammatory processes were early present, made it extremely difficult to determine whether such possibility was also a fact. The author was inclined to doubt if any fibrosis other than fibromata was thus developed; still, in examining the causes of fibrosis, it must be admitted that in a complex organism, where normally the most diverse and intricate vito-chemical changes were conducted in such perfect harmony, there must be a sympathetic relation between all parts, of such sensitiveness that either mechanical or chemical elements might excite protective processes before anything more serious than functional disturbances were developed. Certain fibroses certainly pointed clearly in this direction.

The disturbances of parenchyma which preceded fibroid development were atrophy, due to decrease of nutrition, and degeneration or necrosis, due to perversion of nutrition. In the first it was evident that of the two factors concerned in maintaining normal nutrition—namely, food supply and tissue appropriation—the first was especially at fault, and that the causes of such fibroses were to be found in the blood or the vessels. It was especially noted, however, that even a diminution in the quantity of nutrient supply could not pass a certain point without inducing degenerative or necrotic changes. But the conditions which decreased nutritive supply in moderate degree usually affected considerable portions of an organ, if not the whole; so that, when they reached the point at which degeneration began, it was so diffused as to leave no area in which reparative changes could occur. The atrophic form of fibrosis was thus seldom followed by the inflammatory.

The product of primary degenerative or necrotic changes, which, if repair was to take place, must be somewhat circumscribed, was in most instances a complex process.

It was in this form that all those causes which affected cellular vitality became prominent.

By far the largest and most important class of all the causes of fibrosis were, the author believed, those which acted directly to diminish the vital force by which the cell appropriated to itself necessary elements from the blood and completed those metabolic processes which produced protoplasm or converted it into normal waste products. This class included mechanical, chemical, and trophic influences, among which were undoubtedly many unrecognized causes of this change. Tobacco, anxiety, opium, mechanical and mental strain, all struck at nutrition in the same way, by lowering tissue vitality, quite as surely as stimulation of functional activity beyond the point where repair could keep pace with waste. Many unrecognized products were probably developed by defective functional activity in the alimentary canal, liver, kidneys, and other organs, which directly or indirectly were provocative of equally marked fibroid changes. The high-tension pulse, pounding heart, and subsequently clouded and offensive urine, which followed an attack of simple acid dyspepsia, showed how possible this was, while the tissue hyperplasias and degenerations which followed the entrance of tuberculous or syphilitic poison into the system at once suggested that other poisons might produce similar tissue injury.

Summarized, the causes of fibroid processes might be given as (*a*) all direct stimulants to fibrous growth; (*b*) all conditions inducing a limited decrease in nutritive supply—viz., arterial fibrosis, embolism, pressure on vessels, vaso-motor changes, and so forth; (*d*) all conditions and elements which induced, through perverted nutrition, either degeneration or necrosis. Under this last head might be included mechanical strain, pressure, defective nutritive supply or tissue inactivity, and, most important, all toxic and trophic influences.

Then, as to the relation of diathesis to fibroid processes. Physiology taught us that during embryonic life the tissues of the body gained not only specific functions, but also specific irritability, which rendered the reactions that they might manifest to the same stimulus essentially different. In health these reactions differed in quality and in degree, but a perfect harmony was maintained both in their nature and in their extent. It required no very extended biological study to demonstrate that this quality of irritability in protoplasm was liable to great modifications, which did not necessarily affect all the tissues, but might be localized or limited to one tissue. The consequent departure from the normal in tissue activity disturbed the established harmony of all vital activities, and essentially constituted disease. To such a specialized modification of tissue irritability, whether it was an increase or a decrease, we applied the term diathesis.

Diathesis might, then, manifest itself in any one of the bodily functions by a display of activity disproportionate to the exciting cause. As the author understood fibroid processes to be always productive, and the function of fibroid tissue to be solely that of growth and continuance, the fibroid diathesis implied that in a given individual fibroid developments were above the normal of systemic harmony under purely physiological stimuli, and became greater under pathological irritation than they would be in the perfectly balanced physical economy. The individual with this diathesis was handicapped, therefore, not by nature, but by the intensity of his processes. Changes similar in kind might be developed by appropriate causes in any individual, and with the same result, but they required a stronger and longer stimulation for their development. While recognizing, however, a special fibroid diathesis, we must take heed clinically not to overlook the relations which other diatheses bore to the fibroid processes. Diminished functional power in the pancreas, for example, was not primarily the fibroid diathesis, but, with a resulting intestinal indigestion, vitiated portal blood, exhausted liver, and overtaxed kidneys, the first clinical evidence of this defect might be the ringing heart sounds and tense arteries which foreboded arterial fibrosis. It must also be borne in mind that fibroid processes, injurious under some conditions, might become directly conservative under others, and that the two opposing diatheses might result in the cure or relief of the disease produced by one or the other, this result being attained by the very intensity of one diathetic condition. Whenever necrotic changes occurred in the tissues, fibroid developments were the only methods of repair; but when the cause of the necrosis was especially powerful, only a pathologically strong fibrous activity would suffice for its arrest.

With these considerations the objective point of the paper was reached, to the effect that diathesis determined the nature of the primary and predominant action which followed any given stimulant or irritant, when one or more was possible; and that it modified the ratio between an established process and its cause.

The author then proceeded to call attention to the special manifestations of fibroid processes in the arteries, heart, liver, and kidneys, concluding, after elaborate argument, that in arterial fibroses the following factors combined to produce necrosis and inflammation: 1. Cellular toxæmia. 2. Mechanical strain, possibly during the hypertrophy of the muscular coat, but more probably during the muscular degeneration and relaxation which followed or accompanied the hypertrophy. 3. Anæmia from contraction of and pressure upon the vasa vasorum. The more or less potent causes of cardiac fibrosis might be enumerated as: 1. All toxic blood elements and nervous trophic influences which tended to prevent its parenchymatous nutrition by their action upon the assimilating power of its protoplasmic elements. 2. Localized mechanical interference with the nutritive supply from changes in the arterioles. 3. Traumatism, either of strain or of compression. Hepatic fibroid processes were the sequence of tissue injury from three sets of commingled causes: 1. Direct toxic action on the hepatic tissue elements, of which syphilis was a pure example. 2. Mechanical injury, from obstructed vessels and canals. 3. Degeneration changes, necroses induced by extensive functional activity or special stimulation. The causes of fibrosis in the kidney were excess of functional activity, mechanical conditions developed from the physiological or pathological, and toxic action upon the renal parenchyma.

In the course of the discussion of the subject, Dr. W. Osler, of Baltimore, dealt with the question of interstitial processes in the central nervous system. The connective tissue of the central nervous system, he said, was of two kinds; one, the neuroglia, special and peculiar, derived from the ectoderm, with distinct morphological and chemical characters; the other, derived from the mesoderm, identical with the ordinary collagenous fibrous tissue of the body. Both played an important part in indurative processes in the brain and spinal cord. A convenient division of the scleroses might be made into the degenerative, the inflammatory, and the developmental. After briefly reviewing the pathological data known and assumed in connection with these divisions of the subject, the speaker thought that the three points which for their elucidation required both work and words might be embodied in the following questions: What was the relation of the vascular change to the degenerative sclerosis? How far were they histologically mesodermal or ectodermal, or were they mixed, containing both neuroglia and collagenous connective tissue? What was the nature of the primary affection in the lobar sclerosis of children; was it inflammatory, an encephalitis, or meningo-encephalitis, or was it an essential lesion in the vessels? Could we recognize a purely ectodermal form of developmental scleroses?

Dr. C. L. Dana, of New York, read a paper contributing to the same line of work and considering the chronic fibroid processes of the spinal cord. These he classed into: (1) Primary degenerative, (2) secondary degenerative, and (3) reparative and inflammatory. The first included locomotor ataxia, lateral sclerosis, combined scleroses, multiple sclerosis, progressive muscular atrophy, and amyotrophic sclerosis. These scleroses were not inflammatory, but due to the destruction, primarily, of cells and fibers. The causes of this destruction were either toxic substances or disturbances of nutritive equilibrium by infection, physical strain, or imperfect nutritive supply. They were not related to any special diathesis. The secondary fibroid processes, so called, had been shown by French pathologists to be probably to a great extent a neuroglia proliferation, or gliosis, not a fibrosis. The reparative and inflammatory scleroses, usually called chronic myelitis, diffuse myelitis, or transverse myelitis, were mixed processes composed of simple necrotic processes and secondary degenerations.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Sixteenth Annual Meeting, held in Washington on Tuesday, Wednesday, and Thursday, September 22, 23, and 24, 1891.

The President, Dr. A. Reeves Jackson, of Chicago, in the Chair.

The President addressed a few words of welcome to the fellows, and called upon Dr. J. Taber Johnson, of Washington, who welcomed the society on behalf of the profession of that city.

The Advantages of "Mixed" Anæsthesia in Gynæcological Surgery.—Dr. John C. Reeve, of Dayton, O., read a paper with this title. Anæsthesia was deemed an imperative necessity in most gynæcological operations, especially the major ones. This was owing to the time required for their performance, to the great sensitiveness of the parts operated upon, whether these included the external organs or those within the abdominal and pelvic cavities, and to the necessity of absolute immobility of the parts and the avoidance of straining, as in vomiting. It had been found as a matter of experience that a combination of narcotics, administered by the mouth or subcutaneously, with anæsthesia by inhalation, the so-called "mixed" anæsthesia, was both desirable and useful. This combination had first been suggested by Nussbaum in 1863, who administered a hypodermic injection of sulphate of morphine and sulphate of atropine prior to the inhalation of the anæsthetic.

Bernard had offered a similar suggestion in 1864, having experimented with dogs and found the results more satisfactory than when inhalation anæsthesia alone was used. To Bernard was due the credit of putting the matter upon a scientific basis. At subsequent periods the value of his methods was confirmed by other experimenters, including Harley and Bartholow. The author first published his experience with this method of practice in 1876, although he had been using it for the previous six or eight years, his habit being to administer hypodermically $\frac{1}{6}$ grain of sulphate of morphine and $\frac{1}{160}$ grain of sulphate of atropine. Further experiments upon this subject had been made by Dastre and Morel, of Lyons.

The anæsthetic which was habitually used by the author for inhalation was the so-called A. C. E. mixture (alcohol, chloroform, and ether).

The objects which he believed were attained by the "mixed" method were as follows:

1. Emotional excitement on the part of the patient was in great measure allayed.
2. Complete anæsthesia was more readily induced.
3. Sensitiveness of the surface to be operated upon was greatly lessened or abated.
4. Complete anæsthesia could be more steadily maintained than by inhalation alone.
5. The period of rest and freedom from pain after the operation was prolonged perhaps for hours.
6. There was much less tendency to vomiting after the operation. This was abundantly shown by statistics.

With regard to safety, it would be conceded that neither this nor any other form of anæsthesia was entirely free from danger. The author was aware of only three deaths, however, which could be attributed to this method, and he felt quite certain that the risks were reduced to a minimum by it. The method had also been found especially valuable in ophthalmic surgery, safety, rapidity of effect, and simplicity of subsequent phenomena being considered. The quantity of material required for inhalation was much smaller than by other methods, and the danger to life was greatly diminished, as already remarked. It was believed that the stage of excitement was also decidedly diminished, a great advantage in sensitive females. Of course, these effects were to be accounted for by the stimulating action of the atropine upon the heart and the sedative action of the morphine. In experiments upon animals Dastre had reported that he seldom saw any bad effects even when the operations were prolonged. Instead of the A. C. E. mixture used by the author, ether alone or chloroform alone could be used for inhalation, and a smaller quantity of either would be required than when the morphine and atropine were omitted.

Dr. Charles W. Sawyer, of Chicago, had found the method advocated by the reader of great value during the second stage of labor.

Dr. J. H. Baldy, of Philadelphia, believed that the struggling which was so commonly observed during the first stage of anæsthesia was usually due to the fact that the gastro-intestinal canal of the patient had not been properly prepared for anæsthetic inhalation. His belief was that if a patient was freely purged before an anæsthetic was administered there would be little or no struggling, and the surgeon should insist that the patient be so prepared.

Dr. William T. Howard, of Baltimore, objected to the use of chloroform anæsthesia. He had seen three deaths from its use and none from the use of ether. He believed in properly purging the patient before an operation, but in his experience this was not always a safeguard against vomiting after the operation.

Dr. John Byrne, of Brooklyn, approved of the "mixed" method of anæsthesia, and could verify the statements that it required less material, that there was less struggling during the first stage, and that there was a more satisfactory return to consciousness.

Concealed Accidental Hæmorrhage during the First Stage of Labor.—Dr. Henry C. Coe, of New York, read a paper so entitled. Attention had been called to this subject in 1869 by Goodell, to whose paper the author was indebted. The number of cases which had been carefully recorded was small. The condition was usually so overwhelming and its results were so profound that the accoucheur would usually have difficulty in so carefully observing the phenomena as to be able to recall them. Many of the women would of necessity die undelivered before the attendant could define and carry out the proper plan of action. The accident occurring in the first stage of labor, one would be very apt to be thrown off his guard as the patient became collapsed, the os still being rigid. The author's case was then narrated, which was, in brief, as follows: The patient was a young primipara, who had been under observation during the several hours from the inception of labor. The vertex was presenting in the first occipital position. The phenomena were normal, except that severe pain in the lower portion of the abdomen was complained of. Suddenly the uterus increased in size, and had a doughy feel. This induced the author to dilate the os manually, rupture the membranes, and quickly extract the child, which was a dead one. The placenta soon followed and was found to be fatty and calcareous. In a very short time the patient expired. The author believed that such cases must often have a traumatic origin, whether from blows or violent coitus, or what was akin to traumatism, namely, coughing or straining. In the case in question, in addition to the diseased condition of the placenta there had been irregular uterine contractions as a possible ætiological factor. In some cases it would be possible to detect accidental hæmorrhage at its inception, especially if the uterine contractions were irregular and weak, with pain in the lower part of the abdomen, tenderness of the uterus, and weakness of the fœtal heart action. The patient might be restless, and yet be able to move about. Soon there might be pain of a bursting character in the uterus, with a doughy feel. The hæmorrhage externally might be insignificant, though an enormous quantity of blood might have been poured out into the uterus. The pulse and general appearance of the patient would be alarming and the fœtal membranes tense. In addition to serious injury from loss of blood, the condition of shock would be a factor of great importance.

Some writers had likened the condition to that of severe intestinal colic, but such a condition would hardly be expected at such a time. The prognosis was very bad. Not only were skill and promptness on the part of the accoucheur demanded, but the patient's reparative powers must also be good. The death of the child was usually unavoidable. Rupture of the uterus might occur, especially if pressure upon the fundus, which was advocated by some writers, was practiced. As to treatment, pressure from without was not indicated, especially if the head had not descended and the os was rigid. Dilatation, turning, and delivery would be effective in some cases. Stimulants should be given by the mouth and subcutaneously, and a consultant with his craniotomy forceps should be summoned. Ergot should be given subcutaneously, and if the head descended it should be perforated. If it did not descend, craniotomy and delivery should be practiced. Another useful measure would consist in tamponing the uterus with iodoform gauze after the placenta and clots had been removed.

Dr. Charles Jewett, of Brooklyn, believed it was not unusual, in the condition under discussion, that the vessels of the placenta should be friable, and the placenta itself easily separated. As the reader had said, fatal damage was often accomplished before the exact condition was discovered. Persistent pain in the abdomen in the first stage of labor should excite suspicion of this condition, and the abdomen should be carefully palpated. The membranes should not be ruptured until the uterus was dilatable. Careful pressure with an abdominal bandage would sometimes stop the hæmorrhage and favor dilatation. Above all things, interference should not be too precipitate, especially if the patient was in profound shock. The intra-uterine gauze tampon would in many cases serve a very useful purpose.

Dr. Robert A. Murray, of New York, considered that the treatment of this condition prior to dilatation was not the same as that which was proper after dilatation had occurred. Before dilatation the vagina should be well tamponed, and digital pressure exerted upon the arteries of all the extremities, thus retaining a certain quantity of blood within the brain. After contractions had come on and dilatation was fairly accomplished, the membranes should be ruptured and delivery accomplished with the forceps. Then the uterus should be douched with hot water, and other means of stimulation appropriate to the condition employed. The shock was likely to be an important factor, and, as had been stated, the quantity of blood lost externally might be small.

Dr. H. D. Fry, of Washington, suggested that, inasmuch as the results in this condition were no better than they had been fifty years before, it was proper that some new suggestion in the matter be made. It was true that the plan of treatment should be governed by the fact of the dilatation or non-dilatation of the uterus. If the os was undilated, *accouchement forcé* would increase the shock and the chances of a fatal issue. He did not think the tamponing of the vagina would be useful, for it might not arrest the bleeding. Tait had suggested that the Porro operation be performed if the cervix was not dilated, and this was worthy of consideration, as the patient's chances could not by this means be made much worse than they already were.

Dr. Thaddeus H. Reamy, of Cincinnati, had seen but one case of this condition in his many years of practice, and it was briefly narrated. The patient was moribund when first seen and died within a very few minutes after delivery.

Dr. A. J. C. Skene, of Brooklyn, did not believe that a Porro operation in such a condition as was being discussed was worthy of consideration, as the result would almost certainly be fatal.

Dr. Coe, in conclusion, quite agreed with the speakers that the proper plan of action consisted in the use of stimulants and rapid, intelligent, and not too forcible delivery. The tampon in the vagina might encourage the separation of the placenta. If one was uncertain as to the diagnosis, it might be well to introduce the hand into the vagina and push the head up. He considered the Porro operation about as useful as the post-mortem Cæsarean section. The hæmorrhage in this condition was not like that which occurred with rupture of the uterus, which called for its own line of treatment, but was into a closed cavity. The indications were for promptness, care, and gentleness.

The Therapeutic Aspects of Some Ovarian Disorders.—Dr. E. W. Jenks, of Detroit, read a paper thus entitled. The standpoint of the paper was the surgical one, though the use of certain drugs was sometimes indicated in certain ovarian troubles. The author's work as an abdominal surgeon had begun in 1868, and he had watched the development of abdominal surgery, especially as it pertained to ovarian disease, with the greatest interest. Criticising the results that had been obtained, it seemed to him that the education of the gynæcologist gave him special fitness for the surgical treatment of ovarian disease, perhaps more than the experience of the general surgeon. The object of operations of this character should be to cure as well as to remove diseased organs, to do something more than to obtain pathological specimens. For this reason it was believed that such operations should be done only by those whose experience gave them particular fitness for the work. Mental disease was a condition which, in the speaker's opinion, did not warrant such operations, neither was catarrh of the tubes a sufficient cause. In not a few cases the diseased organs were susceptible of cure without recourse to a radical procedure. This did not imply that the organs should not be promptly removed if they were the seat of incurable disease. Radical operations were seldom indicated in cases in which anæmia, malarial disease, and neurasthenia were the morbid conditions. The question of diagnosis was a very important one, and careful selection of cases was most desirable. Much relief was often obtainable by the use of viburnum, apiol, and other drugs, and electricity had a useful though a limited field. The same could be said of vaginal applications of iodine, glycerin, etc. The conservative method of saving such portions of organs as were not thoroughly diseased had much to recommend it.

Dr. Andrew F. Currier, of New York, believed that little objection could be offered to the propositions that had been advanced by the reader. He recalled the experience of Battey, who had reported in his paper read before the society in 1887 the histories of fifty-four patients, who were all that had been operated upon by him in the fifteen years since he had devised the operation. Battey's suggestion that the cases for operation should be carefully selected was one that should be heeded by all operators. Among the indications that had formerly been urged for the operation was that of mental disease. The want of success that had attended operations for this cause would permit one to say that this could no longer be considered an indication. The same was true of certain forms of nervous disease. Doubtless many mistakes had been made in the past in the selection of cases. This was no argument against the operation, for it was true of most operations for which the indications were manifold. There was no doubt in the speaker's mind, however, that the operation was one of enduring value.

Dr. H. C. Coe believed that in New York the operation was seldom if ever performed except in cases in which the lesions were severe ones. An important point to consider was that women with tubal or ovarian disease who became pregnant might suffer seriously during or subsequent to pregnancy if the diseased organs were allowed to remain. Martin's experience in this direction was quoted as of importance.

Dr. J. H. Baldy thought one should distinguish between macroscopic and microscopic lesions of the appendages in considering the propriety of an operation. No operation should be performed unless the lesion was a serious one. He believed that all would agree that many cases had been made worse by the removal of the appendages. Those cases in which the lesions were severe were likely to be cured by an operation. It was an admitted fact that the results of operations were better in women who had been great sufferers prior to the operation than in others. Many of the latter class died when subjected to operation.

Dr. Jenks stated that the great object of his paper had been to obtain an expression from the society that the field for this operation was a limited one, and that it should not be performed by inexperienced men.

Insanity following Gynæcological Operations was the title of the next paper, by Dr. J. H. Baldy, of Philadelphia. He had carefully investigated the reports of the insane asylums in Pennsylvania to ascertain if possible the number of women who had been placed in them after having been subjected to gynæcological operations. In eight institutions of this character there were records of only fifteen cases in which such operations had been performed prior to the patients' admission. In eleven of the cases insanity had been present before the operations were performed. In only four cases had good results been obtained in cases in which operations had been done for the relief of insanity. Few as were the reported cases, he had formed the opinion that insanity followed gynæcological operations more frequently than was commonly supposed. Cases of this character had been reported by Thomas, Keith, Barnes, and others. He had seen one case in which insanity followed an operation upon the perinæum, though the patient ultimately recovered. In another case, in which there had been hysteria and mania, abdominal section had been performed and diseased tubes and ovaries removed, and the patient had an attack of mania shortly afterward. In a short time she improved, but the improvement was followed by a relapse into the former condition, and death resulted in a short time. The autopsy revealed nothing of importance except cerebral congestion. In all cases of this character several factors might be present, including sepsis, a pre-existing tendency to mental disease, chronic alcoholism, etc. The condition might be a reflex from peritoneal injury, but if this was the case, why did not mental disease follow abdominal section more frequently? Shock and loss of blood were other possible causes, also the abrupt institution of the menopause—a condition in which mental disease was by no means rare. It was thought by some writers that the condition was analogous to the traumatic delirium that was sometimes seen by the general surgeon; but the objection to this was that this condition occurred after operations that had nothing to do with the genital organs. The form of insanity most frequently reported after gynæcological operations was melancholia.

The conclusions were that insanity might take place in cases in which there was no hereditary tendency to mental disease. It occurred as frequently in men as in women. It might come after convalescence had been established, and was more common than was generally supposed.

A Clinical Study of Carcinomatous and Sarcomatous Neoplasms in the Broad Ligament, with a Report of Cases, was the title of a paper by Dr. J. E. Janvrin, of New York. The author had been able to find only one case in which sarcomatous disease of the ovary had been observed, though he had verbal reports of three others. The cases which he reported demonstrated the fact that malignant neoplasms did develop primarily between the layers of the broad ligament. Three cases were then reported in detail, two of which were fatal. In the third recovery took place, but the general condition of the patient was not improved. These cases suggested that in certain cases in which hæmorrhage took place into the broad ligaments there might be a pre-existing malignant disease which caused a certain amount of irritation. The reader thought that the term adenoma, as applied to disease of pelvic structures, should give place to the term adenoid hypertrophy. These cases were curable before their change to malignant adenoma had occurred, and the organs should be entirely removed before such a change had taken place. It was believed that electricity and other irritating measures sometimes precipitated the malignant disease which was developed.

Dr. A. W. Johnstone, of Danville, Ky., thought that many rudimentary structures were very susceptible of malignant disease, because of their imperfect nourishment, and that malignant disease often co-existed with benign developments, the former being overlooked. Thus, adenoma might co-exist with simple ovarian tumors, and would be discovered if the pathological examination was carried out with greater thoroughness than was commonly the case.

Dr. A. P. Dudley, of New York, thought malignant disease very often developed from an injury to the tissues. Such an injury had been suggested in the use of electricity. Apostoli had admitted that such a result might follow the cauterization to which fibroid tumors were sometimes subjected with the galvanic current.

Dr. A. F. A. King, of Washington, believed that cancer was often due to imperfect nerve supply, as had been suggested by Dr. Johnstone, the parts being therefore deficiently nourished. It was possible that electricity paralyzed the nerve supply in cases in which it was employed.

The Present and Improving Status of Cæsarean Surgery was the title of a paper by Dr. R. P. Harris, of Philadelphia. In 1876 and 1885 the operations of Porro and Sänger had been suggested, and the result had been a great saving of human life. In America, Cæsarean operations had been more successful in the first half of this century than was usually supposed, 52 per cent. of the women being saved. At that time more were saved in farm houses than in hospitals. Now the case was reversed. Abroad, cases for Cæsarean section were seen at earlier and hence more favorable periods than was the case in this country, which was one cause for better statistics in foreign countries. In this country Cæsarean cases were more frequently complicated by cancer, kidney disease, and pelvic abscess than by rickets and malacosteon, which was another cause for better results abroad than here. No cases in which cancer was a complication should be allowed to go to full term. The author had seen thirteen Cæsarean operations in this country, and eleven of them had been successful. If cancer was a complication, the mother should not be allowed to nurse her child. Porro's plan of having an external stump was theoretically good, but the results had not been especially good; hence European operators were constantly endeavoring to devise improvements upon the method. The statistics of the Porro operation in Italy, Germany, Austria, and the United States were given. In all these countries the Porro operation was more successful than formerly, because it was now to a greater extent than formerly an operation of selection. Early antisepsis, the emptying of the uterus outside the body, the use of hot water, sewing up the cervix, and isolating the stump with iodoform gauze could all be regarded as improvements in the operation. Much importance should also be attached to skillful assistance at the proper time. There would be much less fear of the knife for this operation if the mortality could be reduced to 10 per cent.

The comparative value of the Porro and improved Cæsarean operations had recently been studied in Vienna by Breisky and others, to the advantage of the latter. There was no longer any fear of suturing the uterus firmly, the number of sutures being gradually increased. Rapidity of execution was very desirable with either operation, and this could only be obtained with experience. The Cæsarean operation had been performed in thirty to forty-five minutes, even when thirty sutures in the uterus had been used. The Cæsarean operation was the more simple of the two if one was unfamiliar with operations of this character. It was not yet decided whether it was well to remove the tubes and ovaries in all cases. It was also a question whether one should advise a woman to submit to the greater danger of the Cæsarean operation in preference to craniotomy.

Dr. H. J. Garrigues, of New York, considered the Porro operation as the definite discovery of one man; the improved Cæsarean section was due to the combined investigations and suggestions of several men. Sänger's only original suggestion in his book was to exsect portions of the uterine muscle at the borders of the wound which had been made. Sänger's first operation was the eighth of the modern operations, while the speaker's was the third, and quickly followed those of his two German predecessors. The greatest point had been the suggestion to suture the uterus after the fœtus had been removed, and that had been made by Lungren, of Toledo, Ohio. One reason why Americans were not so successful in this operation as Europeans was the arrangement at the hospitals, whereby an attending physician had a service lasting only a few months in the year. He should have a continuous service and also an assistant of great skill and experience. Another reason was that aseptic midwifery was still far from being the rule in this country. The speaker thought that the danger of a Cæsarean operation was increased if the ovaries were removed, and pain might continue as a result a long time. He did not think well of the plan of ligating the Fallopian tubes; it might result in hæmatocele. With reference to craniotomy, he thought there were times when one was quite justified in destroying a living child. Leopold, the most successful operator by the Cæsarean section, had shown the great advantage of craniotomy in certain cases.

Dr. H. D. Fry, of Washington, reported a case of Cæsarean section which had been begun at the third hour of labor and had terminated successfully.

Dr. A. P. Dudley, of New York, believed that the improved Cæsarean operation could be made to give results as good as those of craniotomy. He thought that improvement would come in the method of treating the wound and the peritoneal cavity. In the operation which he had performed he had used a continuous catgut suture in three rows.

Dr. H. C. Coe was quite in favor of the elective Cæsarean operation, time, location, and assistants being all matters of choice.

Dr. R. A. Murray, of New York, thought the elective operation would eventually give results in America which would equal those abroad. The operation was imperative in some cases in which craniotomy could not be done, and he thought it possible that the results might some day be better than those of craniotomy.

Dr. W. H. Parrish, of Philadelphia, believed that the author of the paper was in favor of the elective operation in cases in which deformity of the pelvis would always render craniotomy a very dangerous procedure. That cases were not available for operation at the proper time was due, in part at least, to the defective teaching in our medical schools, students not being taught to recognize pelvic deformities. He believed that the Porro operation would always be a more dangerous one than the Cæsarean section, and that the mortality of the latter could be lowered.

A Case of Multiple Neuro-lipomata following Laparotomy was reported by Dr. H. Marion Sims, of New York. The patient had been under observation more than six years. She was a young woman who was quite well at the time of her marriage, in 1884, but in ten days was brought to him in great distress with vaginismus. He had cured this, as he supposed, by stretching the vagina and excising the hymen, but in six months he was called to see her again. She was then pregnant and was suffering with epileptoid convulsions of the most violent character. Relief was obtained from time to time by inhalations of nitrite of amyl, and it was supposed that after parturition, when the pressure conditions were removed, she would get well. Her labor was normal, but relief was not obtained. Both ovaries were enlarged and very sensitive, and they, with the tubes, were removed. This stopped the convulsions, but in a short time a small and very sensitive tumor developed in the skin at the right of the scar. It was removed and was found to be composed of fat with a nerve filament in its center. In two days a similar growth appeared on the other side of the scar, then a group of them at the lower portion of the abdomen, and subsequently many groups at various portions of the abdomen. The case was seen by Dr. A. Martin, of Berlin, and others in consultation, but none of them could give any advice in the case, having never seen anything like it. The groups of tumors were removed as fast as they appeared and had been carefully examined It was thought for a time that there was a malignant element in the case, but this idea had proved incorrect, as the woman was now perfectly well. Twenty-eight operations had been done in the course of two years, and there had been no recurrence for the past three years.

(*To be continued.*)

Book Notices.

Atlas of Clinical Medicine. By BYROM BRAMWELL, M. D., F. R. C. P. Edin., F. R. S. Edin., Assistant Physician to the Edinburgh Royal Infirmary. Vol. I. Part I. Edinburgh: T. & A. Constable, 1891. Pp. 48.

THIS is the first fasciculus of a work of considerable magnitude. It is to consist of a series of ninety very large colored and photogravure plates, with text and detailed description. The plates accompanying this number are very beautiful and the text is worthy of the highest commendation. It is devoted to myxœdema, sporadic cretinism, and Friedreich's ataxia.

Massage: a Primer for Nurses. By SARAH E. POST, M. D., Lecturer before the Training Schools for Nurses connected with Bellevue Hospital, Mount Sinai Hospital, St. Luke's Hospital, and Charity Hospital, New York. Second Edition, with Seven Original Photoplates. New York: The Nightingale Publishing Co., 1891. Pp. 47.

THIS little book, though designed for nurses, is well worth the physician's careful study. It gives solid instruction, elucidated by admirable illustrations, upon a means of treatment that is steadily growing in favor. The style is concise and the instructions are clear and readily understood. In the three sections devoted to a description of the motions of massage, to general directions and the management of the patient, and to local massage, the subject is treated of in a thorough and most satisfactory manner.

BOOKS, ETC., RECEIVED.

Therapeutics: Its Principles and Practice. By H. C. Wood, M. D., LL. D., Professor of Materia Medica and Therapeutics, and Clinical Professor of Diseases of the Nervous System, in the University of Pennsylvania. A Work on Medical Agencies, Drugs, and Poisons, with especial Reference to the Relations between Physiology and Clinical Medicine. The Eighth Edition of a Treatise on Therapeutics, rearranged, rewritten, and enlarged. Philadelphia: J. B. Lippincott Company, 1891. Pp. 18–19 to 937. [Price, $6.]

Epithéliome de la corde vocale supérieure. Extirpation endolaryngienne. Guérison. Absence de récidive. Par A. Gougenheim et H. Mendel. [Extrait des *Annales des maladies de l'oreille, du larynx, du nez et du pharynx.*]

Regional Anatomy in its Relation to Medicine and Surgery. By George McClellan, M. D., Lecturer on Descriptive and Regional Anatomy at the Pennsylvania School of Anatomy, etc. Illustrated from Photographs taken by the Author of his own Dissections, expressly designed and prepared for this Work, and colored by him after Nature. In Two Volumes. Vol. I. Philadelphia: J. B. Lippincott Company, 1891. Pp. xxii–436.

Scientific Medicine in its Relation to Homœopathy. By Professor Theodore Bakody, M. D., of the Buda-Pesth University. Translated from the German by Rudolph F. Bauer, M. D. Philadelphia: Boericke and Tafel, 1891. Pp. 5 to 60. [Price, 50 cents.]

Address in Mental Disorders. By Samuel Ayres, M. D., Pittsburgh. [Reprinted from the *Transactions of the Medical Society of Pennsylvania.*]

On Symmetrical Gangrene. A Clinical Study, with Report of a Case. By Arnold Sturmdorf, M. D., New York. [Reprinted from the *Medical Record.*]

Chorea in Relation to Climate, especially the Climate of Colorado. By J. T. Eskridge, M. D., Denver. [Reprinted from the *Climatologist.*]

Report of the Trustees of the Newport Hospital, presented to the Corporation at its Eighteenth Annual Meeting, July 14, 1891.

Addresses, Papers, and Discussions in the Section in Surgery and Anatomy at the Forty-second Annual Meeting of the American Medical Association, at Washington, D. C., May 5–8, 1891.

Miscellany.

A Discussion on the Disposal of the Dead, in the Section in Public Medicine at the Annual Meeting of the British Medical Association, held in Bournemouth, in July, 1891, is reported in the *British Medical Journal* for September 19th. Sir Spencer Wells, F. R. C. S., said:

It is eleven years since I brought the subject of the disposal of the dead before the members of the British Medical Association by a paper on Cremation or Burial? at the meeting at Cambridge in 1880. Six years before that Sir Henry Thompson's articles in the *Contemporary Review* in 1874 had exposed the increasing evils of our prevailing mode of burial in the earth, and had drawn attention to the advantages of cremation. One of the first effects of these articles was the formation of the Cremation Society of England. Mr. Ernest Hart was one of the original members of this society. So was another member of our association, who was cremated at Woking only a fortnight ago—Mr. Lord, formerly medical officer of health at Hampstead, one of the most earnest supporters of the society in its early struggles, who, only a few days before his death in his eighty-eighth year, told me that its increasing success was a great gratification and consolation to him as his end approached. He has gone—his ashes rest in peace—but his work follows him. He, Mr. Ernest Hart, Sir H. Thompson, and I were the medical members of the first council of the society, and we three have remained on it until now. In 1880, although we had bought land and erected a crematorium at Woking, we had been compelled, in order to avoid a prohibitory Act of Parliament, to promise that we would not burn a human body until the legality of cremation had been established in Parliament or judicially. As soon as it was established—by Mr. Justice Stephen's charge at Cardiff in 1884—the council made known their intention to devote their crematorium to the use of the public, provided certain regulations or safeguards against the possible destruction of a body which may have contained traces of poison or afforded evidence of injury were observed. But it was not until March, 1885—only six years ago—that the first human body was burned at Woking. Two others in the same year, 10 in 1886, 13 in 1887, 28 in 1888, 46 in 1889, and 54 in 1890, give some idea of the progress of the practice. This year, up to the end of June—seven months—there have been 60 cremations, bringing up the total to 214. Some have thought this progress slow; but to my mind it is faster than any of us hoped ten years ago. The practice was opposed by the Government. Many thought it was illegal. It was opposed by medico-legal objections which deserved the careful answers they received. It was met by religious scruples, which were also answered; by the difficulty of establishing a new—or, rather, of reviving an old—custom; and by widespread and powerful sentiment. With all these obstacles to overcome, I can not think our progress has been slow, and every year it becomes faster. I shall say no more about our society and crematorium now, for I am anxious not so much to impress my own views upon the meeting as to ask you to discuss some arguments for and against cremation, and then ask for a very few minutes at the end of the discussion in which I may reply to any questions or comments which you may think call for remark.

In opening this discussion I would assert that the mode of disposal of the dead which now prevails in this kingdom—burying in the ground—is, in the words of Parkes, "the most insanitary plan." Whether in a brick vault or not, in a coffin or not, the same process of putrefactive decay goes on—a little faster or a little slower—with more or less risk to the living from pollution of air or water and by the preservation and cultivation of the germs of infective diseases. Some of the dangers of church-yards and cemeteries are known, but perhaps not acknowledged sufficiently. I do not allude further to them now; I prefer to direct your attention to the proposition that the efforts to abolish zymotic diseases are frustrated by the burial in the earth of the bodies of those who have been killed by the specific microbes of scarlatina, diphtheria, and other infective diseases. In 1880, at Cambridge, when our knowledge of this subject was far less than it is becoming now, I gave some account of Pasteur's researches on the part earth-worms play in bringing up to the surface of the soil the specific microbes from the bodies of animals buried several feet deep—and I will now ask you again to think upon the observations of Darwin, and the confirmatory researches of Pasteur. I will read now the passage exactly as I read it at Cambridge, to show how curiously confirmatory of the then recent conclusions of Pasteur were the facts observed by Darwin:

"In Darwin's paper, read at the Geological Society of London, in 1837, he proved that in old pasture land every particle of the superficial layer of earth overlying different kinds of subsoil has passed through the intestines of earth-worms. The worms swallow earthy matter, and after separating the digestible or serviceable portion, they eject the remainder in little coils or heaps at the mouth of their burrows. In dry weather the worm descends to a considerable depth, and brings up to the surface the particles which it ejects. This agency of earth-worms is not so trivial as it might appear. By observation in different fields, Mr. Darwin proved in one case that a depth of more than three inches of this worm mold had been accumulated in fifteen years, and in another that the earth-worms had covered a bed of marl with their mold in eighty years to an average depth of thirteen inches."

Pasteur's recent researches on the ætiology of "charbon" show that this earth mold positively contains the specific germs which propagate the disease, and that the same specific germs are found within the intestines of the worms. The parasitic organism, or bacteridium, which, inoculated from a diseased to a healthy animal, propagates the specific disease, may be destroyed by putrefaction after burial. But before this process has been completed germs or spores may have been formed which will resist the putrefactive process for many years, and lie in a condition of latent life, like a grain of corn or any flower seed, ready to germinate and communicate the specific disease. In a field in the Jura, where a diseased cow had been buried two years before, at a depth of nearly seven feet, the surface earth not having been disturbed in the interval, Pasteur found that the mold contained germs which, introduced by inoculation into a guinea-pig, produced charbon and death. And further, if a worm be taken from an infected spot, the earth in the alimentary canal of the worm contains these spores or germs of charbon, which, inoculated, propagate the disease. And the mold deposited on the surface by the worms, when dried into dust, is blown over the grass and plants on which the cattle feed, and may thus spread the disease. After various farming operations of tilling and harvest, Pasteur has found the germs just over the graves of the diseased cattle, but not to any great distance. After rains, or morning dews, the germs of charbon, with a quantity of other germs, were found about the neighboring plants; and Pasteur suggests that in cemeteries it is very possible that germs capable of propagating specific diseases of different kinds, quite harmless to the earth-worm, may be carried to the surface of the soil ready to cause disease in the proper animals. The practical inferences in favor of cremation are so strong that, in Pasteur's words, they "need not be enforced."

It would be easy to show that cremation of diseased animals would be a more certain mode of destroying the seeds of infective disease than burial in quicklime; and that simple burial in earth is a very certain mode of preserving these seeds of the germs. They may or may not be destroyed, wholly or partially, by the process of putrefaction—probably they are often wholly destroyed—but occasionally they are preserved with all their destructive powers for many years. I have more than once cited a very remarkable case, on the authority of Mr. Wheelhouse, of Leeds, where the seeds of scarlatina germinated after having been buried for thirty years. In a Yorkshire village part of a closed grave-yard was taken into the adjoining rectory garden. The earth was dug up and scarlatina soon broke out in the rectory nursery, and from thence spread over the village. It proved to be of the same virulent character as the scarlatina which thirty years before had destroyed the villagers who were buried in the precise part of the churchyard which had been taken into the garden and dug up.

And what is true of plague and of charbon and of scarlet fever seems to be true of yellow fever. Indeed, the investigation as to yellow fever has been carried out much more fully. In the Official Consular Reports from Brazil in 1883, a summary is given of the investigations into yellow fever by Dr. Domingos Freire. Dr. Cameron, member for Glasgow, who so well supports the character of our profession in the House of Commons, who tried to get an Act of Parliament passed for the better verification and certifying of the true cause of death in all cases, told me that he had visited Dr. Freire's laboratory at Barcelona, and was thoroughly convinced of his knowledge and accuracy. He records a number of experiments which he considers establish the parasitic nature of yellow fever, and prove that the parasite is an amarillus microbe, a cryptococcus classified among the algæ, which is always found in every case of true yellow fever. Dr. Freire terms it *Cryptococcus xanthogenicus*. He showed experimentally that the parasite "resides in the blood, and, therefore, in all the organs the blood traverses," and that "yellow fever is propagated by contagion from individual to individual, that it is primitively a contagious disease, but may become infectious as soon as sufficiently many focuses accumulate." He discovered that the color of the black vomit is not due to altered blood, but to an alkaloid or extractive produced by excretion or changes in the microbes. By cultivating the cryptococcus on gelatin within a Pasteur globe, he was enabled to obtain an artificial black vomit. And from the earth surrounding the body of a man who died of yellow fever and was buried a year before, he was also able to obtain and cultivate the cryptococcus and produce artificial black vomit. "Another experiment was made with the same earth. A guinea-pig, whose blood examination showed was in a pure state, was shut up in a confined space in which was placed earth taken from that grave. In five days the animal was dead, and its blood proved to be literally crammed with the cryptococcus in various stages of evolution. The urine was albuminous, and the brain and intestines were yellow with the peculiar pigment of the cryptococcus." "In view of such facts," asks Dr. Freire, "how can it now be said that the germs of yellow fever disappear with the burial of the corpse? On the contrary, the cemeteries are perennial focuses of contamination, above all as regards the epidemic diseases whose parasitical nature is now accepted in science."

All this has been forcibly stated by Dr. Cameron in his admirable article reprinted from the *Scottish Review* of July, 1887, entitled The Modern Cremation Movement. And he adds: "Dr. Freire's observations, verified in all their details by his assistants, 'showed that the germs of yellow fever perpetuate themselves in the cemeteries, which are like so many nurseries for the preparation of new generations destined to devastate our cities. Through the pores of the earth these germs spread into the atmosphere, others are carried by the torrential rains so frequent among us to the streets and squares, and, finding there means adequate for their evolution, give rise to the eruption of epidemics in the summer, which is the most proper season for their sporulation.' As a temporary provision Dr. Freire recommends that the cemeteries should be removed to a distance from populous places. 'As a definite and radical measure,' he continues, 'the practice of cremating the bodies would suit completely, and it would be the surest means of extinguishing the epidemics which every year ravage, with greater or less intensity, our most flourishing centers of population. If each corpse,' he adds, 'is the bearer of millions of millions of organisms that are specifics of ill, imagine what a cemetery must be in which new foci are forming around each body. Imagination is incapable of conceiving the literally infinite number of microbes that multiply in these nests. In the silence of death these worlds of organisms, invisible to the unassisted eye, are laboring incessantly and unperceived to fill more graves with more bodies destined for their food, and for the fatal perpetuation of their species.'" The source of the malarial fever of Italy has not yet been so fully investigated with reference to burial, but a distinguished Roman professor, Dr. Crudeli, has proved that the specific organism of the malarial fever of the Campagna does increase and multiply in the soil.

Whether a body be buried in a coffin or in a basket, or a linen cloth, the danger is very much the same. Indeed, it is probable that a coffin may afford some protection against the rapid diffusion of poisonous microbes or ptomaines. Sir H. Thompson, in the last edition of his *Modern Cremation*, says: "The dangerous forms of disease, and the most injurious elements resulting from organic changes in any dead body, are unquestionably slowly decomposed and rendered less pernicious by retention in close coffins for a few years, before contact with the surrounding soil takes place But the adoption of a system which is designed to hasten dispersion of the elements by any and every channel open in the soil six feet below the surface, so that the same spot may be similarly used after a brief term of years, is fraught with risk to the living."

I need say no more of burial of corruptible bodies in church-yards and cemeteries. Burial within the walls of churches or cathedrals is still more open to objection, and there is some reason to fear that this custom may be encouraged by the Report of the Commissioners on Additions to Westminster Abbey. Only yesterday there appeared in the *Daily Graphic* a letter of mine appealing against this recommendation. Some numbers of the paper are in the room, and I may specially direct your attention to some drawings by Mr. Clarke, the architect to the Cremation Society, showing what we have done and propose to do at Woking, and how Westminster Abbey might be used for memorials of the illustrious dead without any risk of injury to the living, if cremation and urn burial of the ashes only, not of the corruptible body, were permitted in Westminster Abbey and in our churches all over the country; our parish churches and their grave-yards, and our Nonconformist places of worship, would, under the reformed practice, amply suffice for burial of the ashes of the congregation, and existing cemeteries would amply suffice for the wants of the increasing population for generations to come. They would become open spaces, quite free from danger, and might be converted into beautiful gardens surrounded by cloistered walls, decorated by the sculptor or the painter, or the worker in glass or metal, and preserve inviolate inscriptions or memorials of the departed. I trust you may be induced to use your influence in hastening the advance of this mode of disposal of the dead.

Mr. James Rhodes, M. R. C. S., Medical Officer of Health, Glossop Urban and Rural Districts, asked if it would not be well to adopt a *via media* in the disposal of the dead, not to surcharge the atmosphere with gases and micro-germs by the process, and so help to poison the living by disengaged gases on the one hand, or disengaged spores of disease germs on the other. This no doubt could be overcome if a system of fumigation with sulphurous-acid-gas fumes were combined with the system of cremation.

Dr. Robert Farquharson, M. P., said: I agree with Sir Spencer Wells that the progress of cremation has been very satisfactory, considering the forces of fashion and sentiment that are arrayed against it. But I would venture to say that if any one would pay a visit to Brompton Cemetery and see the indecent overcrowding that takes place there he would become a speedy convert to the disposal of the dead by burning. The only valid argument against cremation is the medico-legal; but it must be remembered how lax the law respecting death certification now is, and how many people are smuggled into their graves every year without any death certificate at all, and if cremation has done nothing more than direct public attention to this danger, and get it remedied by Dr. Cameron's bill, it will have been of great service to mankind. But the progress of investigation into the bacillary origin of disease gives strong evidence in favor of cremation. The bacilli resist heat and destructive process up to a high point, but their spores are still more indestructible and can readily be carried to the surface by earth-worms, and thus enter the human body; but burning will of course destroy them absolutely. Nor must we overlook the amount of land withdrawn from agricultural purposes for the formation of cemeteries, and the controversy which often arises—as lately in Bournemouth—when the proposal is made to construct a cemetery in the immediate neighborhood of a rapidly-growing town.

Sir William Moore, K. C. I. E., said that some years ago he had occasion to investigate the different methods of disposal of the dead in Bombay. There was the Christian burial; the Mohammedan burial, which was shallow in comparison; there was the Hindoo burning; and there was the Parsee method, being the exposure of the bodies to be eaten by vultures. He came to the conclusion that the Christian method was the most objectionable of them all. Now, as regards the expense of cremation in India, even in Bombay, where wood was dear, a body might be burned at an expense of two and a half rupees, or, say, five shillings. The minimum expense at Woking was, he believed, some £3 16*s*. Before cremation became popular it must be made as cheap as an ordinary burial. Cheapness would be a great step toward popularizing the method. Before concluding, he would mention, in supplement to what Sir Spencer Wells had said, a case occurring in southern India, where the turning up of an old cholera burial ground was immediately followed by cholera among the workmen. There was also another instance. In making a railway the workmen tapped a spring of very clear water. Many, drinking this, got cholera, and on investigation it was ascertained that an old cholera burial ground existed in the immediate locality. Then there was the case at Quebec of the opening of a small-pox burial ground one hundred and fifty years old, small-pox occurring immediately among the workmen.

Mr. Joseph Groves, B. A., M. B., Medical Officer of Health, Isle of Wight Rural District, said he thought there was only one argument other than the sentimental one—namely, the medico-legal one—why cremation should not be carried out. Not long since in the course of exposing the foundations of an abbey the cemetery was laid bare. The bodies had been buried in stone coffins. When the covers were taken off the skeletons were found in every stage of decomposition, and it occurred to those who saw them why should there not have been done properly in half an hour what it had taken six hundred years to do imperfectly.

T. F. O'Dwyer, M. D., Brigade-Surgeon, stated it would be of immense advantage in large garrisons such as that of Malta to dispose of bodies by cremation. He related how soldiers were buried at present, and pointed out that, in case of a siege, the only way bodies could be disposed of in Malta would be by fire, for if the bodies were cast into the sea they would be brought back by the tide. Still, he thought they should commence by educating the public, for, till they were educated to cremation by the medical profession and others, cremation would not be popular in this country. He thought if the higher and better educated classes of the population would show the way by having their bodies cremated, other classes of society would soon follow their example.

Dr. H. Franklin Parsons, Medical Inspector, Her Majesty's Local Government Board, said that, while not wishing to discourage cremation if the objections to it—medico-legal and other—could be overcome, he thought that a good cause might be injured by overstatement, and he could not but think that the sanitary evils of earth burial had been greatly overstated by the advocates of cremation, as in his experience he had scarcely ever met with an instance of injury to health or even of nuisance arising from a burial ground. He pointed out that the arguments to the contrary were chiefly applicable to a former state of things, or to faulty situations and defects of management of burial grounds; and he believed that a body left undisturbed, surrounded by a mass of suitable earth, was not a danger to the public health. Pasteur's observations as to the communication of disease by cattle feeding over graves related to the spores of anthrax, the most resistant of known pathogenic organisms, and conclusions could not be drawn from them as to the ordinary infectious diseases of man. If land were exhaustible, so also was coal; and the reservation of open spaces as burial grounds in the neighborhood of populous places was not without sanitary advantage.

Mr. J. J. Curran, L. R. C. P. and S. Edin., Medical Officer, Killeagh Dispensary District, desired to call attention to the disgraceful condition of the grave-yards in Ireland. The Irish people had a horror of extending their grave-yards, and the consequence was great overcrowding, the bodies being interred only three or four feet from the ground. The stench from some of those grave-yards, particularly in wet weather, was most offensive; and it was surprising that epidemics of fever were not more common as the result. The sanitary authorities in Ireland neglected their duties altogether in this respect, and allowed portions of coffins and even skeletons to be thrown over the graves. For these and many other reasons he would wish to see cremation adopted in Ireland.

Mr. P. W. Nunn, L. R. C. P., M. R. C. S., of Bournemouth, said he felt very much indebted to Sir Spencer Wells for opening a discussion on the disposal of the dead. Living as he did in the town of Bournemouth, he felt that cremation was the one thing they wanted there to obtain a perfectly satisfactory sanitary condition. He regretted exceedingly that their burial board, when they went to Parliament for powers to purchase a new site for a burial-ground, should have omitted to insert a clause giving them power to erect a crematorium. He did not know whether Parliament would be able to do that, but if they had not the power, then it seemed to him that sanitarians should strive to get some law passed which would give to local authorities the power to erect crematoriums if they so desired. He had no doubt that, if such power existed, their intelligent corporation at Bournemouth would be induced to erect a crematorium, and he had no doubt either that, if a crematorium were erected in a very careful manner under the direction of the Cremation Society, in a very few years the majority of the people would dispose of their dead by that method. Although they had at Bournemouth a dry, gravelly soil, which he believed most sanitarians would admit was the best possible soil to bury bodies in, he still most strongly adhered to the principle of ashes to ashes as quickly as possible. He could take members to a church-yard not eight miles from that spot where the soil was of a marly character, and in wet weather he was told that the condition of that yard was something shocking; corpses and coffins were knocking about in the sepulchres and the stench sometimes was horrible. People went to church with their handkerchiefs up to their noses, and the whole place was pestilential. The well at the neighboring vicarage had been poisoned, and times out of number there were outbreaks of typhoid fever at the vicarage house. On opening the wells, they were all found to be poisoned, and the whole sanitary condition of the place, especially in wet weather, was too terrible to contemplate. He was surprised when he heard that one of their vice-presidents, Dr. Parsons, did not seem to give the same adherence to the importance of cremation as he should have imagined he would have done. He thought it would be a good thing if they could in that room then pass a resolution to the effect that some steps should be taken in the matter advocating cremation as a good sanitary measure and one which should be adopted generally in the various sanitary districts of England. Some gentlemen had raised the objection that it was an expensive plan to adopt, but, from an economical point of view, cremation would be by far the better way. Sir Spencer Wells had told them that the cost of the fuel was only eleven shillings. There would be no necessity for going to the expense of a very elaborate coffin; a simple deal one would be all that was required, or a pitch-pine one would be much better. In that way he felt that, on economic grounds, they would be able to recommend cremation as the proper system of disposing of the dead. The waste of money over funerals at the present day was a very serious thing for those left behind.

Dr. T. W. Thursfield asked whether, in the event of cremation becoming more universal, it would not be a more economical method than the present disposal of the dead, and whether it would not be forced upon the authorities of London and other large towns owing to the growing expense of interments. Could not the disposal of the dead be made useful—as, for instance, in the production of gas?

Dr. Stanley Haynes wished to make an answer to a question asked by a previous speaker—namely, the cost of cremation. A few years ago this topic cropped up, and it appeared that in Glasgow the cost of each pauper burial was 13*s.* 11*d.*, whereas cremation would cost 2*s.* 5*d.* Glasgow had become anxious what it was to do with its dead—where t was to put them and at what cost. Dr. Haynes had taken a keen interest in cremation during many years, and had been astounded to find how very large a proportion of educated people—ladies as well as men—did not object to, but actually approved of, cremation. He had found the principal objectors had been the clergy, as might have been expected; but some clergymen agreed that cremation was the proper mode of disposal of the dead. Dr. Haynes looked forward to the time when the majority of our dead would be cremated instead of buried, and, for very many reasons that need not be mentioned here, he hoped this most desirable change would be effected before very many years.

Dr. Henry Tomkins, Medical Officer of Health, Leicester Urban District, said that in the rural districts there was no great need for change of system, but in cities and towns where thousands of bodies had to be dealt with the urgency was becoming very real; hence it was very desirable that public opinion should be led and educated for a change. Secondly, steps should be taken to enable corporate bodies, where they deemed it desirable, to erect a public crematorium at the cost of the rates, for, unless cremation could be performed locally in the large populations, the poorer classes were debarred therefrom by reason of the cost incurred by sending bodies to Woking.

Dr. J. Comyns Leach, D. P. H., Medical Officer of Health, Sturminster Rural District, could not allow such an important discussion as this had been to close without paying a tribute to the memory of Captain Hanham, the pioneer of practical cremation in this country, who, in spite of numerous difficulties and obstacles, established a crematorium on his own ground in the neighboring county of Dorset, and there cremated the bodies of his mother, Lady Hanham, and his wife, and was afterward cremated therein himself. Dr. Leach also instanced the case of the pollution of a well in a newly laid-out cemetery after interments had taken place only for three years.

Mr. Ernest Hart said that originally he did not intend to take any part in the discussion; but, as the secretary made a sort of appeal to him to come and give his assistance from his experience or otherwise to his excellent friend Sir Spencer Wells, he would add a few words. He should like to add to the tribute which Dr. Leach paid to the memory of Captain Hanham. They ought always to bear in mind how greatly—he did not think that very many people knew how greatly—they were indebted for the ripening of popular opinion in this matter of cremation being possible to Sir Henry Thompson and Sir Spencer Wells. It was only a few years ago that not only did cremation not exist, but that it was held to be illegal. When Sir Henry Thompson and Sir Spencer Wells first discussed the matter, they determined to put up a crematorium at their own cost. The risk which they ran then was very considerable, and was entirely borne by them. What they did, however, they did entirely in a public spirit, with a view to the public good. Only a very short time afterward they approached the then Home Secretary, Lord Cross; and, although they were advised that there was no absolute prohibition, still the state of the law was such that for years the crematorium remained absolutely unused. Lord Cross stated that there was no absolute prohibition, but that there was power in the Home Secretary to interpose a great many obstacles in the way of its being done, and that every obstacle which could be interposed by the Home Office would be interposed, and, as far as that office was concerned, the thing should not take place. It was in the face of that opposition, and feeling very desirous that this should be done gradually and by the growth of public opinion, that Sir Spencer Wells, Sir Henry Thompson, and those who were interested in the matter, resolved that they would pursue a missionary course, and would endeavor to ripen public opinion until the Home Office should feel it was not justified in opposing the reasonable wishes of the educated classes who desired this measure of reform. The reference which had been made that day to the favorable views which certain corporations held in the matter of cremation was, he thought, very encouraging to the Section and to all who believed that cremation was a reasonable and proper method of disposing of the dead, and should induce them to go on discussing it until all the facts were known, and then he believed they would have no difficulty in at least obtaining permission for local bodies to erect their own crematoria. There was one peculiar fact which he had mentioned before, but which he should like to mention again, and that was the number of examples which medical men and officers of health might still collect of the quite unsuspected manner in which cemeteries and burial grounds in populous cities might be and were the cause of evils very little suspected. The story that he had to remind them of was the story of the Aldgate pump. The Aldgate pump happened to be in the parish of Whitechapel, and was the most celebrated pump in the city. It was always supposed to give the most delicious water, and to it people sent for drinking-water from far and wide. There was a pensioned officer of the corporation who made a handsome living—it was a sort of post in the gift of the corporation—by pumping this water and receiving gratuities from the people who sent for it. Some of the water from that pump was taken and analyzed, and it was found that that delicious water was intensely contaminated with organic matter, which, in fact, gave it rather a pleasant odor. Close by was a cemetery which had been long out of use, and which might have been supposed to be innocuous, but from percolation through the soil there was a decoction of putrefied bodies, and when it got into the water it gave it a very delightful flavor. They had the greatest difficulty in getting it abolished—it was a municipal corporation they had to deal with—but when it was abolished it was said that the people must not be told that the water had been changed, that the gentleman must still be allowed his perquisites, so that he still retained his salary and the pump was still used, but he pumped only the ordinary company's water, which was laid on by a pipe. He thought that very often such a state of things as that might exist quite unsuspected in a great many parts of England. He did not intend to go into any details on this matter, but he desired to say that he had just visited a country where cremation was practically the rule, where considerably more than half of those that died were cremated. When he was in Tokio in Japan one of the things he went to see was the crematoria, where they disposed of an enormous number of bodies, and it was satisfactory to see how easily and how cheaply it could be done, and without the slightest outrage to any sentimental feelings. There was an average of thirty bodies cremated there every evening separately. There was a row of thirty small furnaces placed side by side, connected with horizontal flues, each one having a vertical flue at the base. By these means they secured a considerable draught and rapid cremation without any offensive exhalations. The funerals were carried out with great ceremony. The body was taken in procession to the temple, where the service was read. The processions were carried out with great pomp and a profusion of flowers. After the prayers had been said at the temple and the service performed, the body was brought to the crematorium in a very simple and respectful way by bearers, accompanied by one friend or one representative of the family of the dead person, who, after the body was deposited, generally went away. The cremation was then performed, and the friend returned the next morning and received the ashes, generally in a very charming pottery jar. Some slight portion of the remains might be taken, and then the rest were taken back to the temple, where they were interred by the priest. It was very satisfactory to see, in Japan, public favor so entirely on the side of cremation. He might mention a very peculiar thing that had happened in Japan in regard to cremation. When the Japanese first came into complete touch with European natives, about twenty years ago, they acquired the idea that Europeans knew how to do things a great deal better than they did themselves. Their representatives in Europe reported that cremation did not exist in Europe, that it was frowned upon as an uncivilized practice, and, desiring not to be uncivilized, as the result of our bad method of interment, they returned to Japan, where the people were highly scientific and educated, and raised an opposition to cremation as an uncivilized practice. Whereupon the Government issued an order prohibiting cremation, on the basis of the superiority of European knowledge. For some years that prohibition continued, and they were beginning to poison their wells, thinking that they were following our superior wisdom. After a few years they began to think a little more for themselves, and they said: "This is a European prejudice rather than a European principle, and we had better follow the lead with the knowledge now acquired and restore cremation and permit it." It was now only five years ago, after a period of ten or twelve years during which cremation was prohibited as a practice discountenanced by Europeans, that it was restored in Japan as a permissible practice. There were now a large number of cremations performed there in the decent manner he had mentioned. It was a private company there which carried out the cremations, and the price varied from seven to five shillings, but he did not think that any system of burial could be more decent or respectful, neither did he think that if cremation came to be more general or universal in the country there would be any difficulty in providing separate crematoria, and so preventing the ashes from being mixed one with the other, and in meeting any reasonable or well-intended desire on the part of the friends.

Mr. F. W. Blake, M. R. C. S., of Bournemouth, said he had seen many examples of revolting instances of polluted church-yards in this country—one solitary instance in a country village in Hampshire. The vicarage house, situated close to the church-yard, was always unsanitary, and this, extending over a period of forty years, had produced many cases of varied forms of blood poison to the inmates of the vicarage. Any method, either that of boiling or burning the bodies, would be a reform if sentiment against it could be overcome. In cases of anthrax spoken of by Dr. Parsons burial deeply in lime would not, he believed, dispose of its spores and prevent its again spreading the disease to the surrounding ground, and thence to cattle that might approach it. Boiling or burning suggested itself. Sir Spencer Wells's interesting account of the action of the earth-worm applied seriously in this disease—anthrax—which he (the speaker) believed might spread to man; and the same applied to diseases of the human body of a virulent type. Nothing could be better than cremation to meet this.

Sir Spencer Wells said so many of the arguments used by some speakers had been answered by others that very little remained for him to say, but he thought no such *via media* as had been suggested was practicable. No system of desiccation or mummification could be carried out in such a population as ours, and we were compelled to resort to burial in the earth, or in the sea, or to cremation. The advantages of cremation were becoming better known, and it was by such societies and discussions as that that the profession were educating the people. No one wished to make cremation compulsory, though it might be well if it were compulsory after death from contagious disease. Their main effort should be one of education—convincing the leaders of thought all over the country that burial of the dead in the earth was dangerous to the living and that cremation was safe and economical. The clergy of the Church of England were certainly not opposed to it. He (Sir Spencer) had addressed one hundred and fifty of the London clergy at Sion College, and there were only two dissentients from a resolution in favor of cremation. Some doubts had been expressed as to the danger of church-yards and cemeteries. One speaker thought there were none, because he had never seen any himself. So a prisoner defended himself because only two witnesses had seen him knock a man down, when he could bring two hundred who had not seen him. There was abundant positive evidence to be adduced, such as some of the speakers had brought forward that day, and members who knew of similar facts would do useful service by making them known. It had been suggested by Dr. Farquharson that this meeting should express its feeling on the subject, and he would propose the following resolution, based upon the declaration made by members of the Cremation Society, with an addition as to the power of municipal officers in dealing with public funds. This resolution, after some modification, stood as follows: "That this meeting disapproves the present custom of burying the dead, and desires to substitute some mode which shall rapidly resolve the body into its component elements by a process which can not offend the living, and shall render the remains absolutely innocuous. Until some better method is devised, the meeting approves that usually known as cremation, and would encourage public bodies in obtaining power to erect crematoria out of public funds."

Dr. J. Comyns Leach seconded the motion, which was carried *nem. con.*

The following resolution, moved by Dr. P. W. G. Nunn and seconded by Dr. Farquharson, M. P., was also carried *nem. con.*: "That this Section, learning that public corporations and other local authorities desiring to erect crematoria are impeded or prevented from doing so by the present state of the law, request the Parliamentary Bills Committee to take that subject into consideration, and to adopt the necessary measures to procure a change of the law."

The late Senator Conkling on the Promotion of Medical Science.—In 1854 a bill for the promotion of medical science—really a bill legalizing dissection—was introduced into the New York Legislature. The late United States Senator Frederick A. Conkling was then a member of the Assembly, and before that body he made a speech in which, after quoting enactments then in force to prevent grave-robbing, he said:

> Now, sir, being aware of the existence of an act of this nature on the one hand and of the urgent demand for *subjects* on the other, I have thought it worth while to inquire into the practical result of this conflict; and I have accordingly addressed myself for this purpose to those best qualified to give the information. I have consulted the ministers of the law and some of the most eminent and respectable physicians of the State; and I confess the result has astounded me. The medical gentlemen assure me that in the city of New York and circumjacent region not less than six or seven hundred new-made graves are annually robbed of their tenants; and the District Attorney of that city informs

me that during the three years of his official service there has not been a single conviction, nor, to his knowledge, a single complaint founded upon this act. But, sir, incredible as this statement at first blush appears, a little cool reflection will suffice to explain it. The law stands in irreconcilable antagonism to an urgent, not to say irresistible, want of society, and it has proved powerless in the contest. It has raised up a body of remorseless vampires in human shape, bearing the name (with what decency I will not stop to inquire) of "resurrectionists," whose business it is to violate the grave, who do violate it with impunity, and who grow rich by this atrocious iniquity. The nefarious trade is best understood in the city of New York, the lurking place of all that is villainous and degrading, though happily also, as I trust I shall be pardoned for adding, the home of all that is virtuous and ennobling—because it is here that the trade finds the widest field for its exercise and the best market for its fruits. It must not be supposed, however, that the appalling number of *subjects* I have mentioned are all required for local use. On the contrary, a great majority of them are exported to supply the wants of other medical schools; and this demand has received a new impetus of late from the greater facilities for safe and rapid conveyance furnished by railroads.

I have spoken of the robbery of new-made graves, but it is not these alone that are rifled. The strongest vault or tomb affords no security against the body-stealer, for he is armed with a key to fit its lock. So it was in England and in the countries of continental Europe before the law-making power saw fit to apply the only effectual antidote, by the enactment of laws like that of which I stand here the advocate. The late Sir Astley Cooper, in giving his testimony before a committee of the House of Commons, stated that there was not a man in England, whatever his rank and consequence might be, whose body he could not obtain if he had a mind to dissect it. When I first heard this statement I regarded it as an idle boast, but I have ceased so to consider it. The brutal manner in which these deeds are perpetrated is too shocking for description, and I abstain from attempting it. Suffice it to say that it comprises every element calculated to impart urgency to the desire which every right-minded man must feel for its suppression.

I am aware that the medical profession are in one sense accessory to these atrocities, and that an idea prevails to some extent among the unreflecting that the provisions of this bill are designed for their especial, if not exclusive, benefit. It would be little better than an insult to this committee for me to occupy more of its time in repelling this idea; and for whatever may seem reprehensible in the medical profession, on account of its involuntary connection with the miscreants on whom, in the existing state of the law, they are compelled to rely, no impartial man can fail to see that they have the best apology which it is possible to conceive. They assert with one voice, and I believe with perfect truth, that without human bodies for dissection medical or surgical science can not be adequately taught or learned, and that occasional "rehearsals" are indispensably necessary to insure safety or success in capital operations, even when performed by the most accomplished experts. Without this preparation there is no security either for the practitioner or his patient. The patient may and probably will lose his life, which might otherwise have been saved; or be left a cripple, when he might otherwise have been healed; while the physician may not only suffer mortification and disgrace, but be mulcted in heavy damages, when he might otherwise have earned a valid title to gratitude and respect. Insist, if you will, that the profession are morally bound, nevertheless, to withstand these motives, but let us cease to wonder that human nature has proved, or to doubt that it will continue to prove, inadequate to the task.

This then, sir, brings me to the second great object of this bill, the suppression of the revolting practices to which I have referred—I mean the pillage of the grave and the traffic in human bodies, by relieving our medical colleges and schools from the bitter necessity of countenancing these practices. The medical gentlemen connected with these institutions assert, and I believe them, that the chief interest which they feel in the passage of this bill arises from their earnest desire to be released, at once and forever, from the bondage of this loathsome alliance. If any honorable gentleman has imbibed the idea that the profession are insensible to all its horrors and degradation, I venture to assure him that he is widely mistaken. Sir, let us be just in our estimate of the medical profession. Let us remember that its ranks comprise many of the most learned, the wisest and most virtuous of our fellow-citizens. Let us not forget its unpaid services to suffering humanity or the self-sacrificing and heroic spirit with which they are often performed. Our eleemosynary statistics show that, in the city of New York alone, one hundred and fifteen thousand sick and maimed persons annually receive gratuitous medical aid; and this committee does not require to be informed that the physician habitually and cheerfully encounters and but too often falls a victim to dangers appalling to other men, regardless of "the pestilence that walketh in darkness and the destruction that wasteth at noonday." Among the gallant dead who but recently have laid down their lives in the hospitals of my own city while contending against the *fever pestilence* I can not forbear to mention the names of Snowden, Graham, Beals, Hutchinson, Porter, Van Beuren, Hedges, Blakeman, Calhoun, Worth, and Leonard.

To this affecting catalogue I might add many cherished names from the ranks of the Irish physicians engaged in hospital practice in the city of New York, one half of whom sicken and one sixth die with fever; yet the poor in these institutions always have the best medical services in the country rendered gratuitously. An eloquent writer, in speaking of "the spirit of martyrdom" which nerves the profession in the hour of peril and dismay, pays the following beautiful tribute to the physicians of a neighboring State:

"But why should I multiply instances of courageous charity? They are so common, so much a matter of course, that to perform them is no longer regarded as praiseworthy—to refuse to do them alone excites attention, and that to incur censure; and yet I can not conclude this topic without noticing the noble acts of the noble men of Ohio. You all remember how, in 1848, the plague fell on Sandusky city, and made havoc, before unheard of in this country. It was estimated that one sixth of the inhabitants remaining in that doomed city were carried to their graves in less than one month. On the 3d of July the population was found by census to be 5,667; and of this number only nine were confined to their beds by sickness. On the 22d of the same month the mayor reports: 'It is impossible to describe the desolation that withered the hearts of the strongest; the physicians were worn out by toil and more exhausting cares, and it became difficult to procure nurses for the sick or burial for the dead.' On the 30th, says another report: 'The havoc was awful. Our few remaining physicians were flying from one part of the city to another, unable to give more than a few moments to those struck down, and great numbers were doomed to die without a physician or a nurse.' On that sad day the plague-smitten cried aloud for help, and their cry reached the ears of those on whom the sufferer never calls in vain. Lasting honors to the men who responded to this call, in the name of the profession! In a single day help arrived; and in two days the six physicians of the town were replaced by *twenty-four physicians and five medical students* from distant places. One impulse inspired these men in their mission of love; one courage sustained them. Through them spoke the heart of the profession. God blessed their labors, and the plague was stayed; and when at length their work of mercy was accomplished, and they had returned to their homes, the mayor, in his proclamation, acknowledging these and other favors, says: 'The benefits conferred and the obligations imposed are so great that words seem powerless to express the gratitude felt for these great and holy and disinterested offices of charity.' 'For it adds not a little to the meritoriousness of the services that all compensation from the town and poor was declined'; and he concludes: 'Though the citizen of Sandusky can not find words to express his gratitude, he can thank God that his lot is cast where Christian charities grow and flourish, and he can invoke God's best blessings on those who remembered him in the day of sore distress.'"

For myself, I should be ungrateful, as well as unjust, were I to withhold from the medical profession that high meed of confidence and respect which is so justly their due; for I stand here a living monument of surgical skill in the reduction of a compound, comminuted fracture, which might well have cost me my life, and which, but for the great skill of the eminent surgeon into whose hands I had the good fortune to fall, would at least have left me a cripple for the remainder of my days.

Should any gentleman doubt the sufficiency of the supposed law, consistently with a faithful observance of its numerous restrictions, to supersede the diabolical traffic of which I have spoken, I can only say that those best qualified to judge are of opinion that it will prove efficacious for this purpose. I am assured that, of the great number of persons who annually die in our prisons, but more particularly in our almshouses, a large proportion, sad to say, are utterly friendless, and are therefore of the description of persons to whose remains the medical colleges and schools would become entitled under the law.

In conclusion, Mr. Chairman, although I am aware that I may appear to have already transcended the limits I prescribed to myself at the outset, I beg leave to call the attention of the committee to the nature of the alternative presented to our choice by this bill. Pass it, and you need no longer dread the desecration of the tomb. Thenceforth the medical profession will cease to be the unwilling patrons of the body-snatcher, and will gladly ally themselves with their fellow-citizens as his foes. You will thus convert them, from the reluctant antagonists of the law for the protection of the grave, into its most earnest and efficient supporters. Reject this bill, and you virtually sanction the enormities against which it is aimed. You thus become the abettors of the grave-robber, and participants in the infamy of his infernal trade.

Femoral and Ventral Hernia in Women.—In a paper thus entitled, read at the recent meeting of the American Association of Obstetricians and Gynæcologists, Dr. Henry O. Marcy, of Boston, described the methods by which he obtains a radical cure. He advocates the dissection of the sac to its very base, which is sutured across and removed. The internal ring is carefully closed by a line of deep, double, continuous tendon sutures. The canal is narrowed and closed in a similar manner, and the wound sealed with iodoform collodion without drainage. The operation is conducted with the strictest antiseptic care. There is but one rule, he says, and it can not be too rigidly enforced; the *aseptic* suture must be *aseptically* applied in *aseptic* structures, and the wound must be maintained *aseptic*. The failure of either of the above-mentioned factors not only endangers the result, but may be followed by the most serious consequences. Modern surgery demands of the operator every safeguard to insure an aseptic wound, but he who uses buried animal sutures must take, if possible, even greater precautions, since infection carried into a wound thus firmly closed is, for obvious reasons, attended with much greater danger than in a wound united by interrupted sutures which, at the end of a few days, are to be removed, and where drainage is relied upon to permit of the escape of infective or foreign material. It is in part on account of defective technique, the use of drainage, and the too often septic wound, that failure to effect a cure after hernial operations so generally occurs.

I began, says Dr. Marcy, to use the buried animal suture in operating for the cure of hernia in 1871, and since that time have for the most part used it in the closure of all operative wounds, and in all my operations for the cure of femoral hernia, where the integrity of the intestine has not been involved, I have never observed a subsequent symptom indicating danger, and, so far as I have been able to learn, there has not been a single recurrence. There is little pain, and even œdema of the tissues does not ensue. After a few days in bed the patient is allowed to sit up. In some instances I have permitted the use of the chair on the second day without any apparent harm. I never advise the subsequent application of a truss.

If it can be demonstrated that femoral hernia is curable, then the advisability of the operation should be taken into consideration, and, if it can be proved that the cure remains permanent, it adds much to the argument in favor of operative measures; but where it is demonstrated that, under proper precautions, based upon an accurate anatomical knowledge of the structures involved, the operation is not severe, does not cause long detention from active duties, does away with the punishment inflicted by the life-long wearing of a truss, and is almost without danger, there remains no reason why all the sufferers from femoral hernia should not profit by surgical measures and demand to be restored to the ranks of active service.

Dr. Marcy makes an equally strong plea in behalf of surgical intervention for the cure of sufferers from umbilical and ventral hernia. In umbilical hernia he dissects the peritoneal sac quite within the margin of the ring, sutures it across at its base, and resects it. The subsequent steps of the operation are conducted under irrigation. There are conditions when it is wise to resect the ring and close as in an ordinary laparotomy, but the method which the author more generally recommends is peculiar to himself. The structures composing the ring are divided laterally upon the plane of the abdominal wall, about half an inch in all directions. This admits of the coaptation of the sundered parts, and, by lines of strong, continuous tendon sutures, the separated edges are coaptated in a way greatly to broaden the united parts. This widens the line of union to an inch or more, instead of bringing together the narrow edges of the tendinous ring, and, besides affording this great depth to the united portions, brings together freshened surfaces in a high state of vitality, likely to be followed by firm union. It also admits of the joining of the tissues in three distinct layers of strong sutures. As in the other forms of hernia, the skin itself is closed by a line of running or lacing sutures, taken from side to side through the deeper portions of the skin only, which admits of its coaptation by sutures entirely hidden from view. Such a wound requires no drainage and is permanently sealed with collodion.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, October 17, 1891.

Lectures and Addresses.

TETANUS NEONATORUM; BASILAR MENINGITIS.

A CLINICAL LECTURE DELIVERED AT
THE NEW YORK POST-GRADUATE MEDICAL SCHOOL.

By HENRY DWIGHT CHAPIN, M. D.

Gentlemen: Recently there was admitted into the babies' wards of the hospital an infant suffering from tetanus neonatorum, which died in about four hours after admission. I was enabled to exhibit the patient to a few before its death, and I will now give a more detailed history of this instructive case.

Simon F., ten days old, was born healthy, weighing nine pounds. The mother had been deserted by her husband and was in poor circumstances. She seemed to have enjoyed fair health and had never had any miscarriages, this being the first and only child. The condition of the child at birth was normal. The first disturbance that was noted was on the sixth day, when the infant turned its head to one side as if in a slight spasm. This grew somewhat worse, and on the eighth day the child had clonic convulsions, which passed off in a few hours. There had been no history of vomiting. At the ninth day the infant refused the breast and was brought to the hospital, as the mother was in a bad condition.

An examination showed the infant to be poorly nourished. It seemed to be suffering from a general tonic spasm. The arms and legs were flexed and rigid, the fingers were tightly clinched, the head was thrown back, and the jaws were somewhat rigid. Opisthotonos was fairly well marked; the infant could be raised with one hand under the head and the other under the extremities, during which it was still and as stiff as a poker. During the few hours of life it had exacerbations of this condition, though at times there was considerable relaxation. The pupils were contracted and reacted to light. An examination of the lungs was negative. The child swallowed with much difficulty, although it managed to take part of a bottle of sterilized milk and lime water. There was frothing at the mouth when the spasms increased in severity. An examination of the head showed that the occipital bone was much depressed, the parietal bones overriding upon both sides. This deformity was reduced without any difficulty, but the reduction made no difference in the condition of the spasm. A rather untidy dressing was removed from the umbilicus, and the stump was seen to be suppurating and in an unhealthy condition. Swallowing grew more and more difficult, and the infant soon died of exhaustion.

Great difficulty was encountered in procuring an autopsy. However, I refused a certificate, and finally, after a week's delay, secured the privilege of examining the body. During this interval it was packed in ice and frozen stiff. An examination showed no disease or lesion of the central nervous system, though both the brain and spinal cord were examined. The inflammation in the umbilicus could be recognized, and a phlebitis extended about half an inch back of the stump. There was no evidence, however, of peritonitis or pleurisy. The intestines were decomposed and presented nothing worthy of note.

It was evident in this case that the cause of the tetanus was infection derived from the umbilicus.

It has long been recognized as a fact that, although this disease is distributed through a very wide geographical area, it is nearly always found in filthy surroundings. Among the negroes in the South it is exceedingly common, as also in India, in the West Indies, and in parts of Iceland. One of the physicians in the class, who has been practicing in China, tells me it is exceedingly common among the poorest classes there. In one family four infants died of this fearful malady. The beginning of the affection is seen in most cases after the navel-string has separated. We are indebted for a better understanding of this disease to bacteriology. Something besides filth is necessary; there must be a specific cause. As early as 1884 Nicolaier observed that tetanus could be produced in guinea-pigs and rabbits by inserting various particles of earth. This earth contained bacilli which, although not then isolated, produced by their cultures the same disease. This bacillus was afterward described as being of the pin-head and bristle-shaped form. It may exist in straw or dust from hay, which explains the facts that horses are subject to this disease, and that traumatic tetanus is often seen among laborers who are employed about farms and stables. Guelpe in 1889 published a most complete monograph upon the affection. He arrived at the following conclusions: 1. Tetanus is an infectious disease. 2. Traumatic tetanus in the true sense of the word does not exist. 3. Although the horse is one of the animals most apt to contract the disorder, tetanus is not of equine origin. It would be more correct to attribute it to a telluric origin, but this would be too restricted. We believe it preferable to affirm simply that it is of microbic origin. 4. The symptoms of tetanus are not the direct effects of the microbes, but occur in consequence of the toxic substances generated by them. 5. During the first manifestations, at least, of tetanus, the multiplication of the microbes is limited to the seat of infection; and it is only later, and quite rarely, that the bacillus becomes generally diffused throughout the organism. 6. Although opposing the nervous theory of tetanus, we must admit that the nervous system possesses an excessive and altogether peculiar susceptibility to the action of the micro-organisms or products generated by them.

While the bacillus of tetanus does not necessarily exist in any one place, the umbilical sore is undoubtedly the source of its entrance in the vast majority of cases of tetanus neonatorum; hence it is that the utmost cleanliness must be observed in cutting the cord and in dressing it. Dirty scissors are often employed, or string that has not been in a clean place. Scissors can be rendered aseptic by drawing them through the flame of a spirit lamp; the excess of the gelatinous matter may be stripped off the cord, and a dry antiseptic dressing applied. Speedy mummification of the stump will be the best safeguard against the entrance of microbes. There may be no evidences, however, of marked inflammation at the umbilicus. Especial care must be exercised in the umbilical dressings when the infants' parents work in stables, or where the dwelling is easy of access to the stable-yards containing horse manure or loose earth.

It is interesting in connection with the case here cited to observe the condition of the occipital bone. The late Dr. J. Marion Sims considered depression of the occipital bone to be the most common cause of tetanus neonatorum, and thought that relief could frequently be procured by putting the infant upon the face, and thus removing pressure from the back of the head. In this case the occipital bone was markedly depressed, but it was immediately restored to the normal position, yet this resulted in no change in the symptoms.

Prophylactic treatment is the most satisfactory. When the disease has become thoroughly established, it is almost invariably fatal. However, means should be taken to discover, if possible, the seat of infection. In cases of suppuration about the umbilicus, frequent washing with a solution of bichloride of mercury of suitable strength should be employed. Guelpe states that the bacillus exists to a great extent in the deeper portions of the wound, and hence curetting or free incision may be employed. This could hardly be done in the case of the umbilicus. Free antiseptic washing, however, is certainly indicated. With reference to drugs, the two most valuable are bromide of potassium, in large doses, and hydrate of chloral. At the same time that these are administered the infant must frequently be given nourishment and stimulants. The difficulty of swallowing, however, interferes markedly with a satisfactory employment of these measures.

The next case I shall present to you is that of an infant thirteen months old. His mother has always been healthy, has had no miscarriages, and has two other children, aged three and seven years, respectively, and both healthy. This infant was on the breast for a year. Dentition began two months ago, when the two lower incisors were cut. The infant seems to have been perfectly healthy until six weeks ago, when the present trouble began. The child then fell from a sofa, striking the back of the head. The parents are Polish Jews and very stupid, and it is difficult to obtain an accurate history of the events from this time; but it appears that one week afterward the infant began to suffer with convulsions, each lasting several hours. It had two attacks of these convulsions a day for about two weeks. A few days ago the child apparently lost his sight; the bowels were costive, acting only by injections. He is very dull and stupid, sleeps most of the time, vomits, and has some cough. The pupils are dilated and do not react to light, and there is internal strabismus in both eyes. An ophthalmoscopic examination has shown the fundus of the eye to be healthy. The reflexes are somewhat exaggerated. The child's weight on admission was nineteen pounds and two ounces; temperature, 99° F.; respirations, 24; and pulse, 118. Since its admission it has been unconscious all the time, lying with the head thrown back in the position in which you see it. It seldom cries except when disturbed; the limbs are held in the flexed position, but are not stiff. Examination of the lungs is negative. The pulse is irregular at times. On the second day of its stay in the hospital its temperature went up to 100°, but since then it has remained between 98° and 99°. The pulse has varied from 110 to 130, and is becoming more rapid and irregular. The respirations have ranged from 22 to 36. The skin is somewhat hyperæmic, and apparently hyperæsthetic, as the infant will cry if handled much. Both sight and hearing are largely in abeyance, although the perception of light is not entirely lost. The bowels were at first quite costive, and an enema was given soon after the infant entered the hospital. In a day or so they began to act more freely, and finally a condition of diarrhœa ensued which has proved difficult to check. Two days ago the infant had six stools in the twenty-four hours, yesterday eight stools, and to-day blood has been noticed in the discharges. This diarrhœa has come on in spite of careful feeding, the infant being given nothing but sterilized milk, while in the last few days large doses of subnitrate of bismuth have been administered. To-day I have tried to control these discharges by injections of bismuth and starch water. I regard this sanguineous diarrhœa, which does not yield readily to treatment, as a grave symptom in this case.

We evidently have here a case of basilar meningitis in which the prognosis is bad. The unfavorable prognosis may be based upon the fact that the pulse is becoming more irregular, and that it is a clinical fact that few cases of meningitis of any kind go on to recovery when the functions of the brain are seriously impaired and the cranial nerves and special senses are severely crippled.

The question naturally arises as to the cause of the meningitis in this case, and the relation of the fall to the symptoms. Marked cerebral symptoms do not seem to have come on until a week after the accident, but it is well known that meningitis is very insidious in its early manifestations. The active cerebral symptoms are nearly always preceded by very great fretfulness and restlessness, with intolerance of light and more or less headache. Doubtless a careful observation would have established these symptoms in the week that elapsed before the occurrence of the convulsions.

I believe we can broadly distinguish two varieties of meningitis—septic and tubercular. The septic meningitis is produced by pyogenic microbes. These microbes commonly gain entrance through the nose or ears. There may be otitis media, with or without caries of the petrous portion of the temporal bone; or there may be suppurating foci in the nose which communicate with the brain through the cribriform plate of the ethmoid bone. There may likewise be abscesses or tumors in the brain, and occasionally extension of inflammation from some of the structures in the orbit. Doubtless in not a few cases injury acts by producing a fracture somewhere at the base, and thereby affords entrance for the germs. But septic processes in distant parts of the system may occasionally be responsible for meningitis, as the microbes enter the circulation, and are thus carried to the meninges.

In this case there does not appear to have been any discharge from the nose or ears, but still, in some way unknown at present, septic germs have gained entrance to the meningeal surfaces, with the production of inflammation.

In addition to sepsis, the second cause is found in the tubercle bacilli. Tubercular meningitis, however, runs a more subacute course. While the septic meningitis usually terminates before the twentieth day, tubercular inflammation may run for several weeks, or even much longer, presenting exacerbations and remissions. There is generally in these cases a history of phthisis in the family; and heredity is therefore an important aid in diagnosis. There is usually also a history of previous ill-health in the child—the presence of lymphatic enlargements and other evidences of struma. In fact, the distinction between septic and tubercular meningitis must rest principally upon a careful study of the previous history of the cases, and the mode of onset, which is much more gradual and insidious in the latter variety. In well-developed meningitis—where, as already noted, the functions of the brain and special nerves are seriously crippled—the prognosis is about equally bad in both varieties.

The hopeful time for the treatment of meningitis is in the prodromal period. By giving a mild mercurial laxative, applying cold cloths to the head, and administering large doses of bromide of potassium, you may succeed in some cases in controlling the beginning of the inflammation. At the same time, a very careful search must be made for the source of entrance of any septic germs, and to this end the nose and ears must be subjected to careful scrutiny, and, if possible, a thorough antiseptic cleansing. The distant organs of the body must also be examined to find a possible source for the microbes that are beginning to affect the meningeal surfaces.

Original Communications.

A CASE OF MARKED ASTIGMATISM

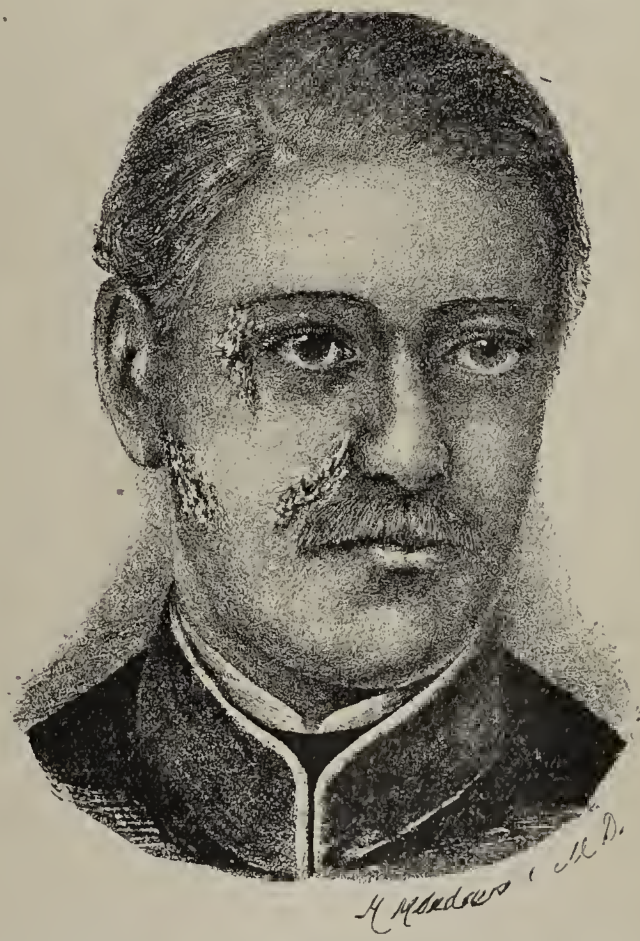
UNMASKED BY INJURIES RECEIVED IN A FIGHT WITH A BEAR; ACUTENESS OF VISION IN RIGHT EYE REDUCED TO 1/6 IN CONSEQUENCE AND RAISED TO 5/4 BY PROPER GLASSES.

By J. M. BANISTER, A. B., M. D.,
ASSISTANT SURGEON, U. S. ARMY.

(Published by authority of the Surgeon-General.)

On December 1, 1890, Sergeant Henry Henser, Troop "G," Second Cavalry, thirty-four years of age, was seriously injured by a bear while deer-hunting near Fort Huachuca, Arizona. While creeping through the underbrush he heard a twig crack by his side, and, turning his head, caught sight of a large bear just as the brute sprang upon him and fastened his teeth in the back of his thigh. The force of the attack threw the sergeant against a strong bush with his back to the animal. While leaning over the bush the man turned around as well as he could, and, placing the muzzle of his carbine against the bear's left flank, fired, whereupon, with one blow of his paw, the brute knocked the carbine out of his hand, the force of the blow sending the weapon several yards down the hill upon the side of which the desperate conflict was going on. Just at this time the bush against which the combatants were pressed broke and the two rolled down the hillside, the bear on top. The latter began at once to utilize his advantageous position by attacking his enemy's left shoulder, which he lacerated severely. To protect himself as much as possible, the soldier now grasped the bear's nose with his right hand and tried to hold him off, whereupon the brute seized the hand and bit entirely through it between the heads of the second and third metacarpal bones. Then, releasing the hand, he made a vicious attack upon the sergeant's face, severely lacerating the flesh of the right cheek, when, seizing his opportunity, with wonderful presence of mind the man ran his right hand down his assailant's throat, to the manifest astonishment of the latter. The bear made frantic efforts to bite through the forearm, but, being choked and demoralized by the unusual obstruction in his throat, could not injure the limb very seriously, though he succeeded in lacerating the flesh in a number of places between the wrist and elbow. Meanwhile the sergeant was making a desperate effort to get his knife out of his right trousers pocket with his left hand, the right hand and forearm being still in the bear's throat, when the latter, having become weak from loss of blood in consequence of the gunshot wound, pulled away and disappeared in the bushes. As soon as the bear left him the soldier tried to find his carbine, but he became so weak from loss of blood that he could not proceed in his search. He was forced to lie down and call for help. Luckily, one of his companions heard his call and came to his assistance. The injured man was carried into Fort Huachuca next day and admitted to the post hospital, where he was under treatment for twenty-seven days.

Soon after the arrival of Troop "G," Second Cavalry, at Fort Stanton, Sergeant Henser consulted me on account of his eyes, and was admitted to the post hospital for treatment January 29, 1891. At this time vision in the right eye was very defective, the second line of Snellen's types being recognized at twenty feet ($V. = \frac{20}{120} = \frac{1}{6}$). The acuteness of vision in the left eye was slightly below normal. Before his encounter with the bear the acuteness of vision in the right eye was normal, the sergeant being an expert shot and a "distinguished marksman"; immediately *after* the facial injuries vision in the eye in question became very defective. When this man came under my charge I examined his eyes with the ophthalmoscope and found the dioptric media perfectly clear and the fundus of each eye normal. Oblique illumination was also followed by negative results, as far as the detection of any abnormal condition was concerned. The use of the pin-hole test raised the vision of the defective eye almost to the normal degree of acuteness. This convinced me that the defective vision was due to refractive error, but, not having at this time a case of trial lenses at my command, I



was unable to determine accurately by the subjective method the true state of the refraction.

The scars resulting from the facial lacerations were located as follows: At the outer margin of the right orbit was a vertical scar about an inch and a half long; another long and well-marked cicatrix occupied the position of the fold of the cheek, while a third, about an inch and a half or two inches long, was located in front of the lower portion of the right ear, extending from the tragus downward on the cheek (see figure).* All of these scars had evidently resulted from deep lacerations, and were caused, as before stated, by the bear's teeth. In addition to the cicatrices above represented, there was a small one behind the ramus of the jaw, opposite the center of the long scar in front of the ear.

The laceration in front of the ear had evidently involved most of the upper branches of the temporo-facial division of the facial nerve, while the wound at the outer margin of the orbit had still further injured many of the filaments of the same nerve intended to supply the orbicularis palpebrarum muscle. As a result of these injuries there was paralysis of the right corrugator supercilii and the frontal portion of the right occipito-frontalis muscle, with a partial loss of power in the orbicularis palpebrarum of the affected side, some of the nerve fibers supplying the latter muscle having escaped injury. As a result of this muscular paralysis, the skin above the orbit and the right eyebrow descended to a lower level than normal, pushing down the integument of the upper eyelid, and thus causing an appearance of ptosis, which existed in appearance only, as the levator palpebræ superioris muscle was unaffected, as were all the other muscles of the orbit, the various movements of the eyeball being perfect.

In consequence of the weakening of the orbicularis palpebrarum muscle it was with difficulty that the patient could completely close the lids of the right eye; it was impossible for him to do this without at the same time closing the left eye, while before the injury he was in the habit of closing either eye separately at will. In addition to the symptoms above described, the right eye was very irritable, there being much lacrymation and sensitiveness to light, which conditions rendered a resort to smoked glasses necessary. *The action of the pupil was normal.*

As soon as the case of trial lenses intended for this post arrived I made a thorough examination of the patient's eyes under atropine, and discovered refractive conditions in the two eyes as expressed by the following formulæ, viz.:

Right eye, + 1·75 D. cyl. axis 171°.

Left eye, + 0·75 D. sp. ◯ + 0·50 D. cyl. axis 35°.

With lenses selected in accordance with these formulæ the acuteness of vision in each eye rose to $\frac{5}{4}$ (V. = $\frac{5}{4}$), one fourth above the normal.

After the effects of the atropine had passed away the best results were obtained by the following lenses, which were slight modifications of the formulæ given above, rendered necessary by the return of the accommodation:

Right eye, + 1·25 D. cyl. axis 171°. V. = $\frac{5}{4}$.

Left eye, + 0·50 D. cyl. axis 35°. V. = $\frac{5}{4}$.

Spectacles, in accordance with this modification, were prescribed for constant use, with most satisfactory results. Since using these spectacles all irritability has disappeared, and, furthermore, by their use Sergeant Henser has been enabled during the present target season to excel his previous excellent record as a marksman. He is classified in his troop as a "sharpshooter."

I give below this soldier's target record for the years 1889, 1890, and 1891, which data were furnished me from the troop records. The scores for the first two years were made before he was injured, while that for 1891 was made with the assistance of the spectacles just mentioned.

1889.			1890.			1891.		
Yds.	Score.	Total.	Yds.	Score.	Total.	Yds.	Score.	Total.
200	17, 20, 16, 18	71	200	22, 21, 20, 21	84	200	22, 22, 20, 20	84
300	20, 19, 14, 19	72	300	22, 19, 22, 23	86	300	20, 21, 21, 23	85
500	20, 14, 21, 21	76	500	23, 19, 23, 22	87	500	23, 20, 19, 24	86
600	22, 21, 20, 14	77	600	19, 20, 14, 16	69	600	19, 23, 22, 19	83
800	15, 17, 17, 16	65	800	15, 17, 17, 16	65	800	15, 15, 14, 16	60
Total known distances..........		361	Total known distances..........		391	Total known distances..........		398
Total skirmish....		123	Total skirmish.....		108	Total skirmish.....		111
Aggregate......		484	Aggregate....		499	Aggregate.....		509

Physiological and Pathological Considerations.—In this connection the interesting question arises, How could the facial laceration cause such a decided loss of visual acuteness in the right eye when the eyeball had entirely escaped injury? This question might be answered in a superficial manner as follows: The error of refraction, being congenital, had continued unnoticed up to the time of the facial injury, having been masked by the power of the accommodation. As a result of the laceration of the face and the consequent involvement of the seventh and fifth nerves, the power of the ciliary muscle was weakened through reflex influence, with a corresponding loss of accommodative power. Synchronously with the depression of the power of the ciliary muscle the refractive error manifested itself with the accompanying loss of visual acuteness.

The above explanation does not go far enough. It fails to explain why an injury to the fifth and seventh nerves should affect the accommodation (on the affected side) alone, leaving the pupil intact, when both the ciliary muscle and sphincter pupillæ are supplied by the short ciliary nerves. Neither does it account for the escape of the levator palpebræ superioris, inferior oblique, and the superior, inferior, and internal recti muscles, which, in common with the ciliary muscle and sphincter pupillæ, receive their motive power *through the third nerve.* Why should the branch from the latter nerve to the ophthalmic ganglion be the only portion of the nerve affected, and why should the depression of function be still further differentiated at the expense of the fibers ultimately regulating the contraction of the ciliary muscle through the ophthalmic ganglion?

In order that I may clearly express my views upon this interesting subject, it will be necessary for me to refer briefly to certain well-known anatomical facts, as well as to the latest physiological investigations and discoveries in this direction. It is a settled fact that there is an intimate connection between the seventh and fifth nerves, the fibers of the two nerves commingling over the face, and fibers originally belonging to the fifth nerve being found in the branches of distribution of the seventh. The most important connection between the two is secured through the communicating branches from the *auriculo-temporal branch of the fifth;* these branches, usually two in number, join the facial nerve at the posterior border of the masseter muscle (see Gray's *Anatomy*, page 550), from which point their fibers become incorporated in the nerve in question, and give a "perceptible degree of sensibility" to all its branches beyond (see Dalton's *Physiology*, page 461).

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* In the figure this scar does not extend high enough. Its upper extremity should reach the tragus.

It is also a well-known fact that the *third*, or *motor-oculi*, nerve supplies motor, or motive, power to all the muscles of the orbit with the exception of the superior oblique and external rectus, as well as to the ciliary muscle and sphincter pupillæ, the connection in the case of the last two being completed by the short ciliary nerves through the ophthalmic ganglion. Furthermore, it has been established by the latest researches in the physiology of the nervous system that the third nerve of each side arises from several nuclei situated in the floor of the aqueduct of Sylvius, on the corresponding side of the median line, *each muscle* supplied by the nerve having *its own special nucleus*. The two front nuclei of the group are those of the *ciliary muscle* and *sphincter pupillæ*, each nucleus being distinct (see Noyes's *Diseases of the Eye*, pages 143 and 145). Thus a lesion of the ciliary nucleus could affect the ciliary muscle alone and leave the muscles supplied by the other nuclei intact.

I shall now attempt, in a few words, to apply the above data to the elucidation of the case in hand. The laceration of the facial nerve in front of the ear necessarily involved also many of the sensitive fibers furnished the trunk of this nerve through the communicating branches of the auriculo-temporal branch of the inferior maxillary division of the fifth nerve, while the other facial injuries likewise affected other branches of the fifth as well as of the seventh.

Now, as a consequence of this tearing of the sensitive fibers of the fifth, an afferent nerve, the irritation was transmitted to the floor of the fourth ventricle of the brain, and in some obscure manner involved the nucleus of the ciliary muscle alone with a resulting depression of its functional activity, and a consequent weakening of the power of the accommodation on the affected side. Why the ciliary nucleus should have been the only member of the group, comprising the nuclei of origin of the motor-oculi nerve, to be affected can be accounted for no more satisfactorily than can countless other obscure nervous phenomena.

Unilateral paresis of the accommodation has been known to follow wounds of the orbit, or neuralgia of the dental or other branches of the fifth nerve, and has been explained by the convenient expression "reflex influence" (see Noyes's *Diseases of the Eye*, page 64).

In the case here described there was no paralysis of the accommodation, but only a weakening of the ciliary muscle to an extent necessitating the unmasking of the ametropia.

The fact that the teeth of bruin played so prominent a causative part in the ocular phenomenon adds especial interest to this case.

Note.—Since this article was written Sergeant Henser has greatly distinguished himself as a marksman on the Army Team at the annual rifle competition near Chicago. He stood number one in the "combine" competition, and won the first gold medal. This feat was accomplished with the aid of the glasses.

FORT STANTON, N. M., *August 11, 1891.*

REMARKS ON
RECURRENT PELVIC INFLAMMATION.*

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As a foundation for the remarks I shall make to-night, I present these specimens, which were removed from a patient whose history I will presently give. This case is selected from a series of cases, and remarked upon because it presents more points of interest for study than any other one of the series. The following is the history of the case:

Mrs. A. is an American, aged twenty-nine years. I saw her, in consultation with Dr. H. Jameson, April 8, 1891, during an acute attack of pelvic inflammation. She had an abnormal temperature reaching some days 103° F., severe pain in the pelvic region, some tympanites, and most persistent and distressing vomiting; she seemed to me to be alarmingly ill, but the doctor and her husband both assured me she was much better than two days previously. I made a digital examination and found the uterus surrounded by a dense wall of inflamed tissue which was hard, tender, and hot. She gained rapidly, left her bed in a few days, and in ten days was out upon the street, though she carried in her face and upon her emaciated form the marks of a severe illness. Believing the pelvic inflammation was due to salpingitis, I recommended Tait's operation.

July 7th.—I was called to perform the operation, Dr. Jameson having previously made all necessary arrangements. The abdominal cavity was opened in the usual manner, the omentum and intestines were gently pushed upward, and an effort was made to find the ovary and tube upon one side. This was ineffectual. We were even unable to distinctly feel the uterus, though its outline could be determined. Further examination revealed to us the fact that there was a diaphragm stretched across the pelvic cavity separating it from the abdominal cavity. This diaphragm was thin and of inflammatory tissue. I ruptured it in the median line, tore a hole in it large enough to admit two fingers, thrust them in, came directly upon the posterior surface of the uterus, and found a fixed mass upon the left side of the uterus, behind, and adherent to the broad ligament. This mass was separated and lifted from its bed, brought out of the abdominal opening, and found to be the tube and ovary. They were ligated and cut off. In the right side of the pelvic cavity was also found an adherent mass together with a cyst as large as a lemon. The adhesions were firm, so that we experienced considerable difficulty in bringing them to the surface, and in doing it the cyst was ruptured. Finally the mass was brought out and removed. Inspection of the peritoneal and abdominal cavities showed us there was general chronic peritonitis. There were flocculi upon the surface of the parietal peritonæum, and the membrane was thickened. The abdominal and pelvic cavities were thoroughly irrigated and the wound was closed, no drainage being used. The patient had considerable pain after the operation, and began vomiting within two hours. She continued to vomit for three days, at the end of which time I despaired of her recovery. All the means we were acquainted with were used to control the vomiting. The patient's condition became desperate, and the pain during and after vomiting agonizing. I remained with her the third night, and at one o'clock concluded to relieve her of pain at all hazards. To this end, three eighths of a grain of morphine were given hypodermically. In twenty minutes she slept. The sleep continued three hours, and she awoke refreshed and asked for a little nourishment, which she took and retained. Her vomiting was almost entirely relieved, and the first discharge of flatus occurred. In a few hours the bowels moved. From this time on the patient rapidly became better, and made an excellent recovery.

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* Read before the Madison County Medical Society, September 1, 1891.

In the foregoing description I neglected to state that the patient had many hysterical convulsive seizures during the first twenty-four hours following the operation.

An examination of the specimens removed shows that from the left side to be an atrophied ovary in a condition of cirrhosis, having a well-marked scar upon the anterior surface, near the outer extremity, two corpora lutea, and a part of a Falloppian tube containing pus. There were also found several small cysts within the ovary.

The mass removed from the right side was made up of a hydrosalpinx containing half an ounce of clear straw-colored fluid, and a markedly diseased ovary. The remnants of the cyst-walls were plainly traced and the ovary was found to contain several small cysts. The fimbriated extremity of the tube and the ovary were so blended together that it was nearly impossible to determine where one began and the other ended. We could not find in this ovary any corpora lutea.

The history of this case and the specimens are presented because of several interesting and practical questions they raise.

We have here a case of recurrent pelvic peritonitis associated with hydrosalpinx upon one side and purulent salpingitis upon the other. Both ovaries are diseased and cystic, and one ovary has been actively performing its function of ovulation, while the other one had ceased to perform that function.

The operation was done when the patient was at her best. The uterus had become movable, the induration in front of and behind the uterus had disappeared, while the annexa had become fixed upon each side, and could be distinctly felt by conjoined manipulation.

It will be profitable for us to discuss the following questions: (*a*) What was the starting point of this morbid process? (*b*) What influence did the inflammation of the pelvic tissues have in the production of the cysts of the right tube and both ovaries? (*c*) What would have been the termination of this case if left to nature or if treated by non-surgical means? (*d*) What is the best treatment to adopt in cases similar to this one?

The previous history of this case shows that a number of years ago the patient had an abortion, from which she recovered imperfectly. Ever after that occurrence there was pain in the left inguinal region. Much walking would induce pain in the left limb and slight lameness. Coition was painful, and menstruation exceedingly so. A few months later the first recognized attack of acute pelvic inflammation occurred, coming on at the menstrual period, and was attributed to taking cold.

At this time, probably, the right uterine appendages became involved, for the pain and soreness were manifested here for the first time. The salpingitis undoubtedly preceded the inflammation of the pelvic peritonæum and cellular tissue.

Much discussion has arisen of late years respecting the *modus operandi* of the involvement of the pelvic tissues in morbid inflammatory processes. The teachings of Emmet for a time had full sway.

According to this teaching, the first tissue outside of the uterus to become involved was the cellular, and the induration surrounding the uterus during the acute attack of pelvic inflammation was due to inflammation and infiltration of the cellular tissue, together with venous engorgement.

It was maintained that, outside of the puerperal state, inflammation of the uterus did not occur. Emmet* says: "I have never seen a case of ovaritis without inflammation of the neighboring tissues, and, where I have had the opportunity of observing early enough, I have always detected cellulitis before the ovary became involved."

"We have no means during life," says he, "of judging with any degree of accuracy as to the condition of the Falloppian tubes; but, unless they have been poisoned by some foreign irritation, as by gonorrhœal discharge, the probabilities are that inflammation of their mucous membrane, as of that of the uterine canal, is secondary to some previous lesion of the cellular tissue."

This was written in 1880, and for several years following was generally accepted as a true explanation of the ætiology of pelvic inflammation. Now it is held by the vast majority of gynæcologists that cellulitis is a secondary affection. It is quite generally conceded that in the non-puerperal as well as in the puerperal state, where pelvic inflammations exist, the diseased process finds its starting point almost invariably in the uterine tissue.

Septic infection, traumatism, and specific infection are the great causes of uterine inflammation that lead to the involvement of the tissues within the pelvis and outside of the uterus.

After the rejection of Emmet's teachings this theory found wide acceptance. According to this theory, the inflammation spreads from the uterus to the Falloppian tube, and thence onward, involving to a varying degree, according to circumstances, the ovary, the pelvic peritonæum, and the pelvic cellular tissue.

The acceptance of this theory has led to a revolution in the methods of treatment, for it is believed by many in high authority and taught by them that chronic salpingitis, especially suppurative salpingitis, is an incurable malady, and that when it is present the victim is in constant peril of her life. Following as a natural result of this teaching, removal of these diseased organs has come to be the almost universal practice.

This has led to many brilliant cures and not a few failures. Why the failures?

I have asked myself this question over and over again, and the only conclusion I can arrive at is that we have not learned the whole truth relating to the ætiology and pathology of pelvic inflammation. I have been forced to this conclusion by finding, in three out of my last fourteen cases of laparotomy for the removal of the uterine appendages, that the Falloppian tubes were, so far as we could discover, perfectly healthy, only they were bound down and rendered fixed by adhesions. At the same time the ovaries were much diseased, and there was chronic pelvic peritonitis.

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* Emmet's *Gynæcology*, p. 262.

In these cases the menopause was artifically established and the patients were greatly benefited.

In another case, a most distressing and alarming one before the operation, both ovaries and one tube were completely removed. One tube was partially removed. Its complete removal was not effected in consequence of its firm and extensive adhesion to a coil of intestine.

The patient was rescued from her imminent danger and put upon her feet, yet suffers every two or three weeks from membranous dysmenorrhœa. The tube removed showed non-purulent salpingitis.

Why the membranous dysmenorrhœa? I found, upon careful inquiry, that she had occasionally during menstruation, the year preceding the operation, expelled substances of the same appearance as that which we now know to be exfoliated mucous membrane of the uterus. A knowledge of this fact we did not obtain before the laparotomy, though we were searching in our investigation.

Reference to these cases and results is made to emphasize what has grown upon me to be a positive conviction—viz., that the generally accepted theory does not express the whole truth, that there are other ætiological factors at work in the production of pelvic inflammation, and that there are often present minor pathological conditions which are masked and overlooked, but which become apparent and operative after abdominal section for the cure of the greater lesion. The facts brought to light by the investigations of Poirier* will aid in the illumination of this subject. He has made "an important study of the lymphatics of the pelvic organs and their connection with inflammations of the uterus and its appendages and with pelvic peritonitis by means of injections of mercury and the dissection of these lymphatics in over three hundred subjects."

I have not seen the original contribution of Poirier, and hence shall quote freely from Mundé and Wells's article in the 1891 *Annual:*

"He (Poirier) finds that the uterus has three sets of lymphatics which anastomose freely everywhere.

"1. In the mucous membrane. In the cervix the network is extremely close. In the body the lymphatics are too fragile to allow them to be injected directly, but the mercury will invade them from a puncture made in the cervix. The network is not nearly so fine as in the cervix, but the existence of definite vessels is affirmed.

"2. Muscular. The vessels from the cervix and lower part of the body, after forming numerous rings of anastomoses in the subserous tissue, are collected into two or three trunks upon each side, which accompany the uterine artery along the inferior border of the broad ligament. From the fundus and upper portion two trunks are formed which pass outward from the upper angles.

"3. Subendothelial. A very fine plexus, which, when injected, maps itself out beneath the smooth serous surface.

"The large trunks springing from the cervix accompany the uterine artery and end in three glands, of which the largest is situated at the angle of bifurcation of the common iliac artery, and the others along the line of the internal iliac. When enlarged, they can be detected by vaginal examination, or by deep pressure in the iliac fossa.

"The lymphatic vessels in the walls of the Fallopian tubes are gathered together in two or three small trunks that unite with the trunks coming from the upper uterine angles. He did not succeed in injecting the lymphatic plexus of the mucous membrane of the tubes from those of the uterine mucosa, or *vice versa*, though he thinks it almost certain they anastomose."

Says Poirier, "I know of no organ which can be compared to the ovary as regards the abundance of its lymph channels. From the plexus at the hilum six or eight large trunks ascend with the ovarian vessels, anastomosing with the uterine trunks at the level of the fifth vertebra." It was further found by Poirier that the injections of mercury sometimes took an opposite direction from the natural one as indicated by the situation of the valves. This is an important point, since infected material in case of engorgement of these vessels might behave in a similar manner to injected mercury.

"In three hundred subjects, mostly of advanced age, it was the exception to find adhesion of the pelvic organs entirely absent." Owing to the existence of the subendothelial plexus of lymphatics and its free communication with the vessels of the uterine substance, Poirier concludes that "no intra-uterine inflammation except, perhaps, endometritis, confined to the cervix, can exist without affecting the peritoneal covering." He goes still further in his conclusions and says he believes that "in all uterine affections and their complications lymphangeitis plays the fundamental part, if the inflammation be chronic, leading to induration of the cellular tissue; if more acute, giving rise to abscess diffused or collected in the subperitoneal connective tissue (peri-uterine abscess, phlegmon of the broad ligament), or in glands; or, if caused by very septic virus, reaching the serous lymphatics, thus inducing pelvic peritonitis." He makes an exception in suppurative salpingitis, believing it is induced by a spread of the disease from the uterine mucosa.

He holds further that in those cases of suppurating ovaries following uterine mischief without implication of the tubes, it is quite possible the inflammation may have traveled along the lymphatic path. All this has a practical bearing upon the treatment of pelvic inflammations.

The source of the lymphangeitis and subsequent cellulitis or peritonitis, or both, is in the uterus. Our curative measures should be directed toward the cure of the primary affection within the uterus, which, if successful, will prevent further infection of the lymphatic system, and a rapid resolution of the inflammation already existing, provided it has not already progressed so far as to have produced destructive inflammation of the tissues involved.

Further, in the light of these findings we may see how the removal of the uterine appendages, even though they are markedly diseased, will not always lead to a cure of the pelvic inflammation, inasmuch as all the tissue supplied by or in contact with the pelvic lymphatic system can not be removed, and the primary cause of the infection and resultant inflammation remains active.

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* *Annual of the Universal Med. Sciences*, 1891, vol. ii, F., p. 40.

We must conclude that of late, in some hands, in inflammatory disorders of the uterus, in neoplasms giving rise to abnormal secretions, in those forms of displacement of the organ interfering with perfect drainage, and in specific inflammations, the treatment of these morbid conditions has been too much neglected, while, on the other hand, undue attention has been directed toward the relief of those secondary conditions which in many instances would entirely disappear if the primary source of the disease were removed.

Furthermore, if the findings and conclusions of Poirier are true, we have an explanation of the rationale of the production of pelvic inflammations in many cases in which infected instruments are introduced into the uterine canal and where there is a rude or maladroit use of dilators and curettes, and in cases of imperfect drainage following curettement.

Our treatment of this subject would be very incomplete did we not mention a third manner in which the inflammation sometimes finds its way to the pelvic tissues outside of the uterus.

Cushing has, I think, conclusively demonstrated that in chronic salpingitis the morbid process extends deep into the tissues so as to involve the muscular coat. I shall quote his words and refer the reader to the cuts* of his slides accompanying the text. He says, referring to the glandular processes found in chronic salpingitis: "Quite similarly such glands bore their way into the muscular wall of the tube, where physiologically there are no glands at all; the tube thus becomes thickened and capable of exuding a large amount of catarrhal secretion, which, if retained, gives rise to the well-known forms of distention of the tube. A study of these conditions, moreover, gives rise to some important considerations. In the first place, it is easily conceivable that in such a condition, where glandular pockets are burrowing in the muscular walls of the tube and approaching very near to the peritoneal surface, an adhesive inflammation should be excited in the walls of the latter, gluing the tubes to the surrounding parts. It is therefore unnecessary to refer the adhesions and attacks of adhesive pelvic peritonitis to escape of secretion from the abdominal end of the tube, although this mode of origin undoubtedly may occur during the earlier stages.

"If the analogy of the erosion of the portio vaginalis and chronic salpingitis is admitted, it is of interest to recall the fact that in the former condition such glandular proliferations may pass entirely through the whole wall of the collum, and, originating in the mucous membrane of the cervical canal, may appear on the outside near the junction of the vaginal portion with the vagina."

The idea is not a new one that an inflammation beginning in the mucous tissue of the uterus and tubes may progress so as to involve all the tissues of these organs, yet the demonstration of Cushing's is the most convincing one I have been able to find. The practical lesson to be learned is, Cure the endometritis early. I believe no efficient means has yet been discovered for curing chronic salpingitis, and in many instances we shall be forced to the removal of the diseased tubes because of the constant jeopardy in which their presence places the patient.

Returning to the specimens we have presented, let us inquire what effect the pelvic inflammation had in the production of the small ovarian tumor found upon the right side and the small cysts within the ovaries.

This brings up the whole subject of the ætiology of ovarian cysts, but I do not purpose entering into a discussion of it exhaustively. Recent writers upon the pathology of these cyst formations quite uniformly agree that the beginning of the morbid process is some developmental fault;* in other words, that "the very beginnings of the tumor formation are congenital, and that these beginnings persist for a long time (almost always until after puberty) without further development." This statement of Schröder's is conceded to be true when applied to dermoid cysts, cysts due to a growth of pre-existing embryonic tissue, and many cysts developing in the Graafian follicle. This theory, however, can not account for the development of those ovarian tumors due to changes occurring in the Graafian follicles that have undergone involution without rupture, or of those "formed from a ruptured Graafian follicle," † or, in other words, from a corpus luteum.

Schröder ‡ says: "The dropsy of the Graafian follicle represents a so-called retention cyst and is to be considered in the same group as tubal dropsy, etc." In the case I have presented there were in the specimen removed from the right side both follicular cysts of the ovary and a tubal dropsy.

According to Waldeyer, "the origin of the cyst is partly owing to the causes which hinder the rupture of the follicle. Sometimes, when a follicle is physiologically immature, rupture fails to take place, either because the ovum has not progressed toward the free surface of the ovary, or because the surface of the ovary is covered with an exudation the product of an inflammatory process which prevents a rupture taking place. In many cases, doubtless, the follicle is obliterated, but the secretion may remain and so give rise to the production of a cyst."

It is not an uncommon occurrence to find numerous small cysts upon the surface of an ovary removed from its fixed position, where it was found partly or wholly surrounded by inflammatory products. Most of them are unruptured Graafian follicles that, in consequence of degenerative changes, have become retention cysts. Such was the small tumor found in the case we are discussing, and such were the small cysts found in both ovaries.

Had this patient lived long enough, if perchance she could have withstood the violent and agonizing attacks of pelvic inflammation, in a few years there would have developed a multilocular cyst of the right ovary, and probably a similar condition in the left ovary also.

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* *Annals of Gynæcology*, vol. ii, p. 475.

* Jones, *Diseases of Women*, p. 425.

† Emmet, *Diseases of Women*, p. 777.

‡ *Ibid.*, p. 778.

We see here, too, an answer to the question so often asked now by young laparotomists, Why do we not meet with ovarian tumors as often as the older ovariotomists did? The tumors are not left to grow. In former years these cases were believed to be cases of cellulitis and were treated as such. The patients who did not die of the acute disease lived on in a more or less invalid state for a few years, when it would be discovered they had ovarian tumors, and these tumors were promptly removed. What years of suffering they would have escaped, and how much more useful lives they might have led had the diseased appendages been removed when it was found they were the subjects of recurrent attacks of pelvic inflammation!

About twenty months ago I began treating some of these cases with electricity, carefully selecting them, excluding all in which I believed there was retained pus or fluid in the tubes as evidenced by the sausage-shaped mass in the pelvic cavity, or the periodical discharge of pus or fluid from the uterus. The use of electricity was never begun until the acute stage of the inflammation had passed, and in some instances I waited until the uterus had become movable and the inflammatory thickening had considerably diminished.

I used a Law fifty-cell battery, a Baily rheostat, a Barrett milliampèremeter, a large abdominal electrode—Martin's, Apostoli's, or a zinc plate covered—and a carbon or metallic-tipped vaginal electrode. For intra-uterine application of the current the Apostoli or Massey platinum electrodes were used. Where there was much inflammatory thickening about the uterus, with not much pain or profuse hæmorrhage at the menstrual period, the negative pole was used within the vagina, and a constant current, varying from 25 to 45 milliampères, was passed from eight to twelve minutes twice a week, resting during the menstrual flow.

In those cases in which there was considerable pain in the right or left inguinal region, and especially if there was profuse menstruation, the positive intravaginal electrode was used, a carbon tip being employed. From 20 to 35 milliampères were passed for eight to ten minutes. I found that, if a current of more than 35 milliampères was passed, a superficial destruction of the vaginal mucous membrane would result. Where marked endometritis was present I used the intra-uterine electrode with the negative pole attached, usually substituting the positive pole when there was considerable pain or profuse menstrual flow.

A detailed record of these cases has been kept, but I spare you the weariness of listening to them. The results may be briefly stated as follows:

No. of cases treated	17
" " cured	2
" " benefited (considerably)	5
" " made worse	2
" " treated with negative results	5
" " in which treatment was not employed sufficiently long	3

This record includes only the writer's experience in the use of electricity in recurrent pelvic inflammation where the tubes and ovaries were involved. He has employed it with quite uniformly good results in cases of ovarian hyperæsthesia with pain, and in mild cases of chronic oophoritis; also in thirteen cases of uterine fibro-myomata, in two of which it caused a disappearance of the tumor and in several others a symptomatic cure. In one case suppuration occurred, and in one patient, who was subsequently operated upon, most dense and universal adhesions were found.

This is certainly not a very brilliant showing if we look at figures alone. If we exclude the three cases in which the treatment was not employed long enough, fourteen cases remain, in which five were considerably benefited and two cured.

Regarding the two patients reported cured, we can not say positively they are cured, for but nine months have elapsed in one and eight months in the other since they were discharged. The same may be said respecting the patients reported much benefited. They need to be watched longer before positive results can be stated. This is a disease characterized by recurrent acute attacks, and sometimes more than a year elapses before a recurrence occurs.

This is a most interesting subject and one worthy of our careful study. In studying it from books and the current literature it is very difficult to arrive at correct conclusions. So much heated polemic writing has been done and so many statements have been made that are directly opposed to each other that one without personal experience in the use of electricity is unable to determine what is best for him to believe regarding the therapeutic effects of the current. I do not know that the study of my experience will be of any benefit to you. You are welcome to take it for what you deem it worth.

During the twenty months that electricity was employed I operated by abdominal section, removing the uterine appendages, in cases in which there was pelvic inflammation, fourteen times, with the following results:

No. of cases cured of the pelvic inflammation	9
" " in which sufficient time has not elapsed	1
" " not benefited	2
" " benefited, but not cured	1
" " of secondary operation	1
Total	14

The case in which the secondary operation was done was one of those indicated as not benefited. The patient was not made worse by the primary operation, but died as a result of the secondary operation. It was the only fatal case in the series.

They were all severe cases, and all but three unsuitable ones for the use of electricity, and yet, as will be seen, they as a whole yielded better results than those treated by the passage of the current. I think I erred in doing the secondary operation. At the primary operation one tube could not be removed because of the dense adhesions. The pelvic peritonitis persisted, as did also menstruation. It was thought this time we might succeed in removing the tube, and, by more thorough irrigation, cure the peritonitis. We did succeed in removing the tube, but the patient died on the third day, of general peritonitis.

During the time previously indicated—viz., twenty months—there were under my observation and treatment twenty other cases of pelvic inflammation in which the tubes and ovaries were involved. I have accurate records of all these cases but six, which were treated at the City Dispensary during my service there, and two cases in private practice. Of these eight cases I can say little. Some of the patients came to the clinic, were examined, and were advised to submit to an operative procedure. None of these patients remained under observation long enough for me to learn much about them, except that they gave the history of having had attacks of acute sickness due to some pelvic trouble, they knew not what. Examination revealed the characteristic tenderness and induration around and behind the uterus; the tubes and ovaries were fixed, and the former were much thickened.

Of the remaining twelve patients, one died of septic peritonitis. She declined an operation. Another died of convulsions, the first one of which occurred soon after an examination. This patient I saw in consultation, and would have operated upon her could the patient have been taken to the hospital. Her friends refused to let her go to that institution, and her surroundings at home were such that we thought her chances of recovery would be better without an operation than with one.

Two cases were cured. One was a mild case of salpingitis and oophoritis upon the left side, and mild pelvic peritonitis, and was under observation six months. Treatment: Iodine to the vault of the vagina; iodine and carbolic acid to endometrium, to cure endometritis; glycerin tampons and hot douches; liquor sedans internally. The other patient had a pelvic abscess, which ruptured two years ago. Nature cured her. She was under my observation for a year. I simply watched the progress of the case toward recovery.

One patient was greatly benefited by rest in bed, iodine to the vault of the vagina, and hot douches.

One patient came under my observation on July 16, 1890, when she was just recovering from an acute attack of pelvic inflammation. The uterus was yet fixed, and there was a slight elevation of temperature. She apparently completely recovered under the following treatment, viz.: Every fourth day the vault was painted with compound tincture of iodine and a glycerin tampon applied. Every day she was given a sitz-bath of a strong solution of sea-salt in hot water, and while she was in the bath a vaginal douche of a like solution was given. Internally she took iodide of potassium and iron. She remained well six months; then another acute attack of pelvic inflammation occurred. This attack was less severe than the former one.

One patient was greatly benefited by the iodine, douche, and rest treatment.

One patient had salpingitis and oophoritis upon one side. The appendages on this side were fixed in an abnormal position. She became pregnant, had a normal delivery three months ago, and is now apparently well of the pelvic trouble, though I have had no opportunity of making a local examination.

Two patients were under the rest, iodine, and douche treatment for several months, but received no benefit. They are simply able to drag around the house. One patient had a pelvic abscess (left side) several years ago, and has been lame in the left leg ever since. The abscess closed in a short time, but there is a mass involving the tube and ovary upon that side. I advised its removal. She declined. Treatment did her no good.

In two cases the pelvic inflammation ended in suppuration. In one of these I am not sure the abscess did not result from a hæmatocele, though there was the history of an old abscess continually discharging into the rectum. When I first saw the patient the abscess was nearly mature. Two or three days later it was aspirated and washed out, and one month later it was freely opened through the vagina with a thermo-cautery knife, washed out, and drained for a long time.

I saw her five weeks later, when the discharge had nearly ceased, and the mass in the pelvic two thirds disappeared. A few days ago she came again for examination. The mass in the pelvis has nearly disappeared, and the discharge also. The other case was clearly one of pyosalpinx leading to abscess. While the patient was deliberating upon an operation the abscess ruptured into the vagina. The acute symptoms were relieved and she declined an operation. Now at the end of eight months and a half she is an invalid.

Summary.—Died, 2; cured, 2; benefited by non-surgical treatment, 2; benefited by treatment, but had a recurrence, 1; became pregnant and apparently cured, 1; not benefited by treatment, 2; ended in abscess, 2.

Unquestionably seven of these patients would have been better treated by surgical methods—viz., the two that died, the one that was benefited but had the recurrence, the two that were not benefited by treatment, and the two that finally had abscess.

If the results in these three series of cases teach anything, it is—

1. In recurrent pelvic inflammation involving the uterine appendages, abdominal section and removal of the appendages yields the greatest number of cures.
2. The surgical method, when compared with the non-surgical method, is a life-saving procedure.
3. Electricity can not be relied upon to cure a large percentage of cases, yet so much benefit has been derived from its use in fifty per cent. of cases that it is a remedy worthy of trial in suitable cases.
4. Recurrent pelvic inflammation is not so fatal a malady as many would lead us to believe. Of the fifty cases reported, but two patients died as a result of the disease. Nearly all of the patients had suffered from the disease many years.
5. The disease tends strongly to produce chronic invalidism and sterility and to result in the formation of chronic pelvic abscesses.
6. If there are no contra-indications and a reasonable amount of non-surgical and electrical treatment has not been beneficial, there should be no hesitancy in performing the curative and life-saving operation of abdominal section and removal of the uterine annexa.

There is just one other point brought out in the history of the case I have reported which I wish to emphasize—viz., after the failure of calomel, Epsom salts, and high enemata to induce catharsis and to control the vomiting, the hypodermic injection of three eighths of a grain of morphine produced the desired result. Morphine unquestionably saved the patient's life. I am more than ever convinced that it is a remedy of great potency, and can be safely and efficiently used in proper cases in the after-treatment of abdominal section.

A CASE OF
TOTAL EXTIRPATION OF THE LARYNX;
RECOVERY WITH A USEFUL VOICE;
OCCURRING IN THE PRACTICE OF MR. GREVILLE MacDONALD, LONDON.

By ARTHUR G. ROOT, M. D.,
ALBANY, N. Y.,
LATE CLINICAL ASSISTANT AT THE HOSPITAL FOR DISEASES OF THE THROAT, GOLDEN SQUARE, LONDON.

J. M. B., aged forty-one, married, a commercial traveler, first sought medical advice in April. For six months previous he had been gradually losing his voice, which loss of voice he attributed to a cold that he had contracted. He had always enjoyed perfect health. His family history was excellent. There were no evidences of his ever having had syphilis. He had smoked possibly to excess, using on an average four ounces of tobacco a week, which he smoked in a pipe. Upon physical examination, he was found to be in perfect health. At this time there was no pain or cough or expectoration or hæmorrhage. The nose and pharynx were in a normal condition. Laryngoscopic examination showed a large, irregular grayish mass filling the anterior half of the rima glottidis and concealing the anterior three fourths of the vocal cords. On inspiration, this mass was seen to fall lower into the larynx, leaving the right cord free. Upon phonation, it also concealed the anterior half of the left ventricular band, receding again in abduction of the cords. Upon the posterior surface of the growth a somewhat superficial ulceration of the size of a quarter of a split pea could be made out, the floor of which was slightly more yellow in color than the surface of the neoplasm, and the edges were somewhat irregular. To the left of the ulcer was a small piece of growth extending backward. Upon examination with the probe, a somewhat extensive attachment to the infraglottic portion of the left cord could be made out. The left ventricular band did not seem to be implicated. The impairment of the movement of the vocal cords seemed to be purely mechanical. A portion of the left cord, the only portion visible, was thickened and congested. The brother of the patient was immediately informed of the grave aspect of the case and an operation was advised but not urged. On April 12th the portion of the growth projecting backward was removed with the laryngeal forceps. This portion, upon microscopical examination, revealed the fact that it was entirely made up of epithelium, confirming the suspicion of epithelioma. On April 15th extirpation of half of the larynx was strongly advised. But on April 24th a consultation of physicians resulted adversely to immediate operation. The patient himself was very desirous of waiting. Portions of the growth were removed by laryngeal forceps, at which time hæmorrhage was profuse. On April 25th, after the intralaryngeal operation, the patient's voice seemed to be completely restored. Upon laryngoscopic examination, no portion of the neoplasm could be seen, and even the site of its attachment was difficult to make out, but the vocal cords seemed to be uniformly thickened and rounded.

On May 11th the whole of the vocal cord was seen to be thickened and darkly congested. At the junction of the inferior with the middle third, between the attached and the free margin, was a silvery surface (two or three lines in its longer diameter) lying in the same direction as the cord.

On May 25th, upon examining this silvery spot with the probe, it was found to be velvety and minutely villous Upon pushing the probe below the surface, perhaps one or two lines, no hæmorrhage followed. The electric cautery point was plunged into this suspicious spot and allowed to remain a few seconds. The result of this cauterization was a slough rather more extensive than the villous surface.

On June 18th the patient's voice was not quite so good, and he complained of fatigue upon using it. The appearances remained much the same.

On July 30th the voice had again improved and was only slightly hoarse. The villous spot was seen to be raised above the mucous membrane and of a yellowish opaque color; the left vocal cord was rather more congested.

On September 8th there was complaint of increasing vocal trouble. It would seem that the growth had taken a fresh start and was projecting over the margin of the cord, involving the epiglottic portion.

On October 20th the patient's voice was much worse. An external operation was strongly urged, based upon the fact that the disease was principally limited to the left vocal cord—the arytænoid cartilage moving freely, there being no pain, no purulent expectoration or hæmorrhage, and no enlarged glands. A consultation was held and it was decided to remove the left ala with the growth and the cord, and perhaps the arytænoid, leaving, if possible, the right cord.

On October 28th the operation was performed, the trachea exposed above the thyreoid isthmus, and a Hahn's tube inserted. The incision was then carried up to the hyoid bone. A supernumerary hyoid lobe of the thyreoid gland had to be removed. The muscles were drawn off from the left ala and the cartilage was divided in the median line. Upon gaining a view of the interior of the larynx the growth was seen to be much larger than expected. The mucous membrane and perichondrium were divided near the upper margin of the ala. The outer surface was then easily exposed. The inferior cornu was cut off and the crico-thyreoid muscle divided. The ala was drawn well forward, the mucous membrane divided in the middle line, and the arytænoid detached from the cricoid and enucleated from its covering of membrane, when the entire mass was easily taken away. During the entire operation but one vessel required a ligature. The anterior half of the right cords was swollen and red. Two thirds of them were removed and the ends brought together with catgut ligature. The Hahn's tube, together with plugging the cricoid ring, prevented hæmorrhage trickling down the trachea. The wound was dressed antiseptically with the use of corrosive sublimate and iodoform gauze. The part removed included the left ala of the thyreoid cartilage excepting the two cornua, the entire arytænoid and the vocal ends with the growth attached, together with the muscles on the inner aspect of the cartilage.

In structure the growth was a well-marked epithelioma. On the day following the operation Hahn's tube was replaced by an ordinary Durham's cannula wound with gauze so as to plug the trachea. On the fourth day the patient sat up, and on the sixth day he swallowed with comparative ease, having up to this time received his food by means of an œsophageal tube. On the seventh day he was able to get out of bed. The tracheal tube was removed on the ninth day, the patient partaking of ordinary diet. He went out for a walk on the thirteenth day, and by the sixteenth day the tracheal wound was closed. The patient left the hospital on November 17th, just three weeks from the operation. He was in good health and possessed of a strong, distinct voice, though somewhat hoarse.

Soon after leaving the hospital he had some difficulty in breathing, which was attributed to cicatricial contraction. On November 22d this difficulty in breathing increased, and in December the patient was again admitted into the hospital and tracheotomy resorted to. A little later, upon laryngoscopic examination, a definite mass could be made out, bulging upward on the right side. The rapidity with which this growth increased was remarkable. The grave aspect of the case was appreciated by the patient, and, in the absence of glandular enlargement, the entire removal of the larynx was decided upon. Seven weeks from the first operation the second was performed.

Leaving out much that might be said as to the detail of this second operation, suffice it to say that it was accomplished with much more ease than the first was. The parts removed at this second operation included the cricoid, the entire right ala of the thyreoid, with the muscles of its outer surface, the remainder of the left ala with the muscles surrounding it, and the lower half of the epiglottis. The wound was dressed in much the same way as before and progressed favorably. On the eighth day the patient was able to swallow while lying flat upon his back, and on the tenth day he was up.

The problem of providing the patient with a voice now presented itself. An artificial larynx was procured from Vienna, but was so large and cumbersome, and the sound produced by it was so annoying to the patient, that it was discarded. A tube like that of the artificial larynx was attached to an ordinary cannula in hopes that the tissue could be made to vibrate. The apparatus consisted of an ordinary Durham's cannula. Immediately behind the shield there was a circular opening upon the surface. Through this opening there passed a short curved tube upward and thence slightly backward, projecting about three fourths of an inch. In the posterior wall of the tube projecting upward was an orifice to admit of the passage of air into the pharynx or at the tracheal opening, as the case might be. The upper orifice was contracted to less than an eighth of an inch in diameter. This apparatus was so far successful that an audible voice was immediately produced. After the patient had worn the tube, however, for a few days, he developed a loud vibrating voice, doubtless due to the falling over of the bilateral fold of the mucous membrane. During the taking of food the upper tube was replaced by a similarly shaped tube, but closed above so as to prevent the passage of food into the tracheal cannula.

The patient is now able to speak in a loud voice, though somewhat hoarse but not monotonous tone. The sound is produced by the vibration of the mucous membrane of the pharynx. He can speak better without the upper tube, but this is necessary to keep the cannula open.

Correspondence.

LETTER FROM BERLIN.

The Association of German Naturalists and Physicians and the Meeting at Halle.

BERLIN, *September 30, 1891.*

As an evident result of the abundant and long-existing provision for university education by each of the German States, there is contained within their national society of scientists and physicians a larger homogeneous body of men engaged in research and in practice than is elsewhere to be found. Its annual meeting, by reason of this homogeneity, presents a most interesting object of attention, and the utterances of its members, by reason of their celebrity, become of the greatest weight.

Beginning at Leipsic in 1822, with the object of effecting a better acquaintance among German scientists and a milder criticism of published scientific works, such as had then already obtained in France and England, the numbers attendant upon the meetings of the association have continually increased, and the contributions to knowledge brought before it have formed a considerable part of the achievements of science within the period since that date.

During the past few years a stricter constitution has been evolved, placing the advancement of science expressly in the foreground and assuming the rights of a corporation for the society, with a result which is yet awaited.

The major portion of those taking part in its sessions is now composed, not of members of the association, but of the particular convention, who also contribute to the provision for the same and are made up of physicians and scientists from the neighborhood, from the empire at large, and from surrounding countries. In addition to these, there comes a noteworthy percentage of fairer partakers in the general festivities.

The association, following the invitation of various cities or universities, successively changes its place of meeting. Its convention extends over a week's time, during which the mornings are devoted to sessions and the afternoons and evenings to the festivities given or provided for those in attendance.

The days are alternately given to general and to special sessions, which differ distinctly in character. The former are chiefly devoted to addresses upon general subjects, such as those, for instance, of Du Bois-Reymond at Leipsic on The Limitations of the Knowledge of Nature, and of Hertz on The Relations of Light and Electricity, at Heidelberg.

These generally intelligible efforts serve as a common bond between those in attendance, and often furnish an exposition of the condition of a particular science or of the latest gains within it. They also serve as a certain counterweight to the general tendency to specialization, which is exemplified in the increase that has taken place in the number of sections holding special sessions.

The sittings of the sections are held simultaneously and are only less distinct from one another than from the general meetings. Their number, in consequence of the increase of the material offered and accepted, has reached thirty-two, and is about equally divided between the more purely scientific and the clinical or practical departments.

By this subdivision a considerable disadvantage arises for general practitioners or others interested in the work of several sections.

On the other hand, the general provision for informal communication between those attendant upon the convention is eminent, and chiefly so by reason of the general entertainments given by the city through her authorities. These, taking the present as an instance, may be characterized as generous and, in view of the picturesquely romantic river offered to observation upon which the city of Halle lies, as highly gratifying; the more so, perhaps, in that the invitation to her hospitality had been given the previous year at Bremen by the mayor in person. A particular source of satisfaction to visitors was the distribution of a volume of four hundred pages, giving detailed accounts of the public administration and institutions of Halle, her university, and other provisions for her inhabitants, including the trolley system of electric railroad, in a high degree adapted to her streets and hills.

The convention, beginning on September 21st, was opened by Professor His, of Leipsic, the president of the association, followed by Professor Knoblauch, of Halle, who concluded a short historical sketch of the previous meeting in Halle, in 1823, by calling forth a repeated "hoch!" to the Kaiser, whose heroic bust adorned the platform and to whom a telegram of homage was sent.

The curator of the university welcomed the assemblage in the name of the Minister of Instruction, and read a telegram of greeting from the same. Further welcome was extended by the Head President of the Province of Saxony, the President of its southern district, the Mayor of Halle, and the Rector of the University.

The first address proper before the convention was given by Professor Nothnagel, of Vienna, upon The Limitations of the Healing Art, and chiefly concerned the question of how far medicine was effective in the cure of disease. Noting the immense advancement in the various departments of medicine in general, the immeasurable aid to cure now offered by surgery, and the discovery of many new means of symptomatic treatment, the conclusion was, nevertheless, expressed that, beyond the specific use of mercury, quinine, and salicylic acid, the art of medicine was without positive means of cure; indeed, in the instances mentioned, it could only be said that the cure was apparently positive.

Following this an interesting discourse was delivered by Lepscius, of Leipsic, upon The Old and the New Gunpowder, with which the sitting closed. At further general sessions addresses were given upon The Peopling [*sic*] of Europe with Strange Plants, by Kraus, of Halle; The Art of Prolonging Human Life, by Ebstein, of Göttingen; and Edward Jenner and the Question of Immunization, by Ackermann, of Halle.

The second day of the meeting was devoted to the sittings of the sections in the various buildings of the university. The latter, which represent in each case a branch of instruction, are mostly contained within a domain in the eastern and elevated portion of the city, are of modern structure, and offer excellent privileges for their various purposes, in general with a wealth of room, both without and within. The newly erected hospital for nervous diseases, under Professor Hitzig, is especially noteworthy. For the clinical departments a quasi-pavilion style of building is employed. The amphitheatre in each is adapted to two hundred or more hearers. At the Surgical Clinic a new auditorium is being erected by Professor von Braman, similar to von Bergmann's at Berlin—namely, with windows exclusively behind and above an amphitheatre of moderate size, having a steep inclination, and provided with a row of inclosed instrument cases at its inner circle (within reach of the operator's assistants), and a tiled floor.

The sections presenting naturally the greatest interest were those of Internal Medicine and Surgery. In the former the chief subject was Koch's treatment of tuberculosis, which was opened by Dr. Aufrecht, of Magdeburg, who had had an experience resulting from the employment of over six thousand injections. He was followed by Professor Weber, of Halle, who exhibited a number of cases of lupus apparently cured, and others in which a relapse had taken place.

Aufrecht, speaking especially of pulmonary tuberculosis, divided his cases substantially into those with and those without severe hectic. In the first-named the patients had come to an earlier demise than would otherwise have been expected. In two cases fresh miliary tubercles had appeared. This he considered to come, not from the setting free of bacilli, but from stimulation to action of germs already distributed. On the other hand, with a treatment, up to September 5th, of 112 cases of the latter kind, he had discharged 48 patients as cured, 37 as improved to a degree not to be reached without Koch's remedy, 22 as improved, and 5 as unimproved and unchanged. Upon the appearance of pain, of blood in the sputum, or of large mucous râles, he ceases the injections for a time. The increase in weight and the improvement in appearance of his patients has been astounding.

He does not cease the injections with the cessation of symptoms. Some of the patients apparently cured have returned with relapse. He therefore does not regard tuberculin as a cure for tuberculosis, but as an accessory to cure, by means of which one can expect the latter with tolerable certainty in recent cases not of a severe character, while in severe ones with large cavities a lengthening of life is to be obtained.

Professor Weber reported the treatment of 160 patients with tuberculin, with observation of them up to the present time. The results were not seldom good, sometimes astoundingly so; in many cases, however, a relapse had occurred. But few of his patients were to be considered completely cured; respecting most of them he could say that they were better than if they had only had the usual treatment.

The general opinion expressed in the Section was in favor of the employment of small doses of the tuberculin is cases not advanced, and against a diagnostic use of the substance.

Guttmann, of Berlin, reported the results of the therapeutic action of methyl blue in malarial disease which he had obtained with Ehrlich, and which he summed up in the statement that this drug had a pronounced action in those diseases. The attacks of fever disappeared within a few days, and after a week the plasmodia were no longer to be detected in the blood.

In the Section for Children's Diseases the action of tuberculin upon the tuberculosis of children was discussed, with an expressed opinion in general adverse to its employment. Schede, of Hamburg, however, reported improvement in cases of vesical catarrh.

In the Section for Dermatology, in which Unna, of Hamburg, opened the discussion, the opinion veered in the opposite direction.

In the Section for Surgery the opening discourse was by Professor König, of Göttingen, upon The Importance of the Recognition of Hæmorrhage into the Synovial Sacs in Cases of Hæmophilia, especially its Diagnosis from Tuberculosis. He had previously employed tuberculin for the latter purpose. His treatment consisted mainly in removal of the serum and clots.

Kraske, of Freiburg, treating of Resection of the Rectum, recommended especially the invagination of the proximal through the distal stump and provisional suture to the skin in the neighborhood of the anus; this he had carried out ten times with successful results. He avoids colotomy and secures an emptying of the bowel by a long preliminary evacuative treatment.

Rieder, of Hamburg, exhibited a patient in whom a year previous a fracture of the arch of the sixth dorsal vertebra had occasioned complete paraplegia. After removal of the compressing pieces of bone by Schede, the paralysis quite rapidly diminished. The patient has now almost normal muscular power, but a spastic gait, left hypæsthesia, and increased tendon reflex. Schede had operated in seven other cases of fractured *vertebræ* without further injury to the patient.

At the beginning of the second session von Bergmann, of Berlin, demonstrated a case in which he had removed some three inches of the tibia and fibula for sarcoma of the former bone, had shoved the stumps longitudinally together, and given the patient—a young gardener—a limb with which he was able, with or without a raised shoe, to walk and work vigorously. Transplantation of bone and of ivory in the diaphysis had not in general been successful in his hands. The inserted pieces, both in man and in animals, healed in by first intention, but continued to interfere with the use of the part.

Professor von Bramann, of Halle, reported a case of successful implantation of bone after complicated fracture of the cranium.

A large number of interesting discourses were given in the Section, besides demonstrations of apparatus, etc.

In the Section for Obstetrics and Gynæcology, Dr. Winter, of Berlin, called attention to two kinds of fever during parturition—namely, septic and simple reflex; the latter appearing especially when the head of the fœtus was engaged in the inlet or outlet of the pelvis, and betraying itself by a considerable rise of temperature with a not very rapid, strong pulse, and cessation after the passage through the obstructing strait.

In the Section for Hygiene, Professor von Pettenkofer, of Munich, spoke on the self-purification of rivers, and stated that the result of researches in Munich was to the effect that water percolating through the soil of the banks of rivers was wholly devoid of infectious elements.

Among the more purely scientific communications may be noted Professor Rosenthal's upon Calorimetric Determinations, in which he came to the positive conclusion that in simple fever there was no increased production of heat, but merely a diminished loss; and that, in fact, for several hours after its inception there was a greatly diminished production, especially during the chill; Professor Bernstein's upon the Consumption of Oxygen by the Tissues, wherein the conclusion was expressed that relatively but a small part of the oxygen imbibed by the organism was consumed outside of the muscles; and Professor Abbé's, in which he demonstrated, by means of simple gratings of various relative width of open spacing, that the image cast by light transmitted through an object and a lens might be the same for each of two different objects, and, on the other hand, might materially differ for the same object when simply certain bundles of rays were cut out in the path of the image-carrying beam by an interposed opaque object.

Owing to the amount of matter brought before the various Sections, the references here given convey an idea of but a small part of the proceedings of the convention, which will appear, however, in a volume of *Transactions*. The overabundance of material offered has raised the question within the association itself whether, now that congresses of specialists in various branches are so many, it would not be well to so preserve the general convention that specialists themselves might personally learn what was particularly transpiring in neighboring territory to their own. At present a restriction of the numbers taking part in the convention has been determined upon, partly to this end.

Treatment of Typhoid Fever.—"Dr. Tordeus has been employing with considerable success a treatment for typhoid fever in the St. Pierre Hospital, Brussels, which consists essentially of moderate doses of an antipyretic combined with an antiseptic. Thus ten grains of acetanilide and an equal quantity of resorcin, or about half that amount of thymic acid, are made up into a five-ounce mixture with a compound decoction of aloes, and tablespoonful doses administered every three hours. This was found to exert a remarkably beneficial effect not only on the temperature, but also on the general condition of the patients. From trials made with acetanilide alone, it was evident that the antipyretic effect was almost entirely due to the combination with it of the resorcin or the thymic acid. Several children were included among the patients so treated, the doses given being, of course, proportionately smaller. Dr. Tordeus is of opinion that treatment of a similar description will be found suitable in other zymotic diseases; indeed, he has tried a combination of acetanilide and benzoic acid in measles and in croupous pneumonia, the latter drug being selected in preference to resorcin on account of its possessing expectorant as well as antiseptic properties."—*Lancet.*

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. APPLETON & CO.
Edited by FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, OCTOBER 17, 1891.

ALLEGED POISONING WITH ANTIKAMNIA.

THE *American Practitioner and News* for September 12th treats editorially of a fatal case of poisoning alleged to have followed the non-professional prescription of antikamnia. The case, briefly stated, occurred in April last, and was in the person of a woman, aged twenty-two years, apparently robust and weighing a hundred and sixty-five pounds. She had a slight headache, and took, without medical authorization, twenty-four grains of the drug. Acute delirium soon followed, then loss of consciousness, ending in fatal coma in about ten hours from the time the dose was taken. Post-mortem examination failed to reveal any organic lesion sufficient to cause death, apart from the action of the drug taken. The greater portion of the body was cyanotic. The membranes of the brain were sky-blue in color, as were the fibrous structures wherever examined. There was clotted blood in the right ventricle.

The composition of antikamnia is not definitely known, but the editorial note in the *Practitioner and News* gives an apparent acceptance of an analysis of the drug, published in the May issue of the *Druggists' Circular*, which makes it consist of nearly eight parts of acetanilide and rather more than two parts of bicarbonate of sodium. Assuming that this analysis is approximately correct, the amount of acetanilide contained in the supposed lethal dose was not far from eighteen grains This is not quite a double dose, ten grains being commonly regarded as the full dose for an adult. It is difficult to connect the almost instantaneous and rapidly progressive poisoning above recorded with a dose no larger than that stated. The questions of idiosyncrasy, of possible undiscovered organic disease, of unknown quantities of the drug previously taken, with a sudden cumulative action, and of the formation of some substitution product such as not infrequently forms in this and other aniline derivatives, suggest themselves and make it desirable that a full investigation should have been made. As the matter now rests, a comment made by the editor is most pertinent—namely, that antikamnia should be listed among the poisonous drugs, and that it should not be promiscuously and non-professionally prescribed. The editor further, and very correctly, we think, inveighs against the use of powerful agents of undeclared composition as apt to lead up to just such calamitous results as that related.

A CASE OF ACROMEGALY IN THE NEGRO.

DR. J. S. BERKLEY has reported in the *Johns Hopkins Hospital Bulletin* for September the first case of this disease known to have occurred in the negro race. His case is the forty-fifth in current literature and the seventh in the United States. It is that of a negress, aged sixty, an inmate of the City Insane Asylum of Baltimore, under treatment for delusions of persecution. The measurements and photographs of the patient were obtained under difficulties, since, like most subjects of paranoia, she is at times very refractory. The enlargement of the extremities has not advanced to the degree noted in some of the older typical cases, but it is sufficient, with other present conditions, to make this case a characteristic one. The hands, compared with the forearms, are enormous, the fingers are thick, the nails are broad and short, the skin is wrinkled and creased, and the phalangeal joints, the first especially, are considerably expanded. The feet also are of large size, with some phalangeal hypertrophy. The inferior maxilla is apparently increased in its vertical measurement, and the soft parts of the face show some hypertrophy, especially the lower lip, which projects forward and is pendulous, giving the profile a prognathous aspect.

The writer gives his analysis of the diagnosis in this case, of acromegaly from myxœdema, rhachitis, and osteitis, dwelling upon the absence of the mucin deposits belonging to the former and upon the absence of deformity of the diaphyses of the long bones in the latter; also from Marie's newly described *ostéo-arthropathie-pneumique*—briefly referred to in this journal for October 3d—by the absence of pulmonary disease. A diagnosis from an obscure form of syringomyelia is attended with greater difficulty. The author refers more especially to two cases, one reported by Charcot in a recent number of *Progrès médical*, in which there were recurrent trophic lesions of the skin of the arms and hands, and another of similar character reported by Holschewnikoff in the *Archiv für pathologische Anatomie und Physiologie und für klinische Medicin*, in which, however, there was no loss of sensibility to heat and pain on either side of the body. Dr. Berkley considers it probable that the hypertrophy of the extremities in his case dates from the menopause, as in a few reported cases whose history was more clearly ascertainable than that of his own. The mental condition of his patient does not allow of any correct estimation of the amount of neuralgic or other pain that may be present; an inconstant headache, of no great severity, is at times complained of. There is in this case a pronounced scoliosis, extending from the seventh cervical to the second lumbar vertebra, a condition that is rather rare in acromegaly, but more frequent in syringomyelia. A summary of all the phenomena of this case points with almost equal probability to some form of angeioneurosis or to some irritative lesion of the posterior roots of the spinal cord, with a presumption in favor of the former.

MINOR PARAGRAPHS.

THE TERM "DERMATOL."

"Dermatol" is the empirical term attached by the Hoechster Farbwerke, of Germany, to the subgallate of bismuth prepared by them as a substitute for iodoform It is asserted to have a strong claim upon the specialists in skin diseases on account of its antibacterial, astringent, and drying properties; but let us suppose that those specialists do not adopt it, but that the gynæcologists, for example, find in it unexploited advantages, how meaningless becomes the term "dermatol"! And, further, to follow the line of criticism marked out in a recent issue of the *Pharmaceutische Zeitung*, if dermatol should prove to be all that its promoters allege, the results might be unfortunate. Other products might then be pushed into the market by the manufacturers, and we might be offered a *gynæcol* for the use of uterine specialists, and a *chirurgol* for surgeons, and nothing seemingly stands in the way of baptizing our old stand-by, the subnitrate of bismuth or some combination thereof, under some new name like *gastrol* or *stomachol*. Rival houses might then be seen competing for the good-will of our eye doctors, one with an *ophthalmogol* and another with an *opticol*. Even the *Hoechster Farbwerke* should be willing, after this, to acknowledge that the *reductio ad absurdum* has been brought home to them.

MYOPIA IN SCHOOLS.

M. Nimier, according to the *Mercredi médical*, has examined this year a hundred and fifty-three young men, candidates for the military schools, of whom he found a hundred and thirty-one to be myopic. From the examination of these myopic pupils he concludes that the defective hygienic conditions often marked as causes of myopia in educational institutions still exist, and among these multiple conditions he emphatically remarks the habitual wrong correction of errors of refraction. The greater number of pupils whom he examined wore glasses chosen by themselves. One extreme case he instances as found among them, that of a young man with hypermetropia who had been constantly wearing a concave lens of six dioptres. Glasses chosen for distant vision serve for near vision by necessity when the students follow demonstrations in class and take notes, hence a spasm of accommodation and a subjective myopia of a degree more important than the real. In the military schools, thanks to the careful correction of ametropias, myopia almost always ceases to be progressive. The most dangerous period is that of severe application and study.

BENZOL IN WHOOPING-COUGH.

Dr. Robertson, in the *Lancet*, after an experience of some years, recommends highly the use of pure benzol in whooping-cough. He states that he has administered the drug where convulsions and other complications were fast reducing all chances of recovery, with perfect success in a few days. In adults, where pertussis often assumes serious aspects, benzol has proved equally efficacious. The dose is two minims, in mucilage, on sugar, or in a capsule, for adults.

GONORRHŒAL RHEUMATISM IN EARLY LIFE.

M. Ollivier reports in the *Union médical* a case of gonorrhœal rheumatism in a girl five years old. The case is well authenticated and was due to an acquired blennorrhagia.

ITEMS, ETC.

A Dinner to the Foreign Guests of the American Orthopædic Association.—On the evening of September 26th, Dr. Shaffer entertained Mr. Howard Marsh, Surgeon to St. Bartholomew's Hospital, London; Dr. F. Beely, of Berlin; and Professor Hoffa, of Würtzburg, at a dinner at the University Club. These gentlemen were the guests of the American Orthopædic Association at its recent meeting in Washington. Covers were laid for thirty, and by special permission of the house committee of the club the library room was used for the dinner. After the toast "Our guests" had been responded to by Mr. Marsh, Dr. Beely, and Dr. Hoffa, the following gentlemen responded to toasts appropriate to the occasion: Dr. A. Jacobi, Dr. E. L. Keyes, Dr. V. P. Gibney, Dr. G. H. Fox, Dr. C. C. Lee, and Dr. Roswell Park, of Buffalo. Among other guests present were Dr. A. Brayton Ball, Dr. L. Bolton Bangs, Dr. A. J. McCosh, Dr. C. K. Briddon, Dr. L. A. Pilcher, Dr. R. H. Sayre, Dr. C. H. Knight, Dr. S. Lloyd, Dr. E. B. Bronson, Dr. E. L. Partridge, Dr. T. Halsted Myers, Dr. U. G. Hitchcock, Dr. B. Farquhar Curtis, Dr. C. Mackenzie, and Dr. Leroy W. Hubbard. The menu was a very elaborate one, and the dinner was one of the largest medical dinners ever given at the University Club.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 13, 1891:

DISEASES.	Week ending Oct. 6.		Week ending Oct. 13.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	59	8	53	17
Scarlet fever	42	8	59	9
Cerebro-spinal meningitis	4	2	2	4
Measles	34	7	37	2
Diphtheria	84	26	74	17
Small-pox	0	0	1	0
Erysipelas	0	0	0	0
Varicella	2	0	0	0
Pertussis	2	0	1	7

The New York Academy of Medicine.—At the last general meeting, on Thursday evening, the 15th inst., a discussion of The Medical and Surgical Treatment of Epilepsy, to be opened by Dr. B. Sachs, Dr. C. L. Dana, and Dr. L. C. Gray, was the order of the evening.

The programme for the last meeting of the Section in Orthopædic Surgery, on Friday evening, the 16th inst., included these titles: Spinal Deformity—a Case for Diagnosis, by Dr. A. B. Judson; and The Necessity for Early Mechanical Treatment in Infantile Paralysis, by Dr. R. W. Townsend.

At the next meeting of the Section in General Medicine, on Tuesday evening, the 20th inst., Dr. J. W. Brennan will read a paper on Essential Paroxysmal Tachycardia; and Dr. M. Putnam Jacobi, a paper on Functional Disturbances of the Heart and Pulse.

At the next meeting of the Section in Public Health and Hygiene, on Wednesday evening, the 21st inst., Dr. Daniel Lewis will read a paper on International and Inter-State Quarantine; and Dr. Thomas Darlington, a paper on The Climate of Southern Arizona.

At the next meeting of the Section in Obstetrics and Gynæcology, on Thursday evening, the 22d inst., a paper on Puerperal Phlegmasia Alba Dolens will be read, and Dr. F. S. Halsey will present a Report of a Case of Intestinal Obstruction following an Operation for Stenosis of the Cervix.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 28th inst., Dr. J. Blake White will show a double nasal spray and vaporizer, and Dr. F. E. Hopkins will read a paper entitled Intubation for Stenosis in a Case of Tubercular Laryngitis.

Minutes of the Questions Board of the New York State Board of Medical Examiners, at a meeting held on October 8th, in the regents' room of the State Capitol at Albany, present Dr. Fowler, Dr. Moore. Dr. Searle, Dr. Wetmore, and Dr. Lewi, together with Dr. Watkins, chief clerk Gallup, and Mr. Boland, stenographer, of the regents' office, Dr. Wetmore was elected chairman and Dr. Lewi secretary. The committee immediately proceeded to arrange and revise the questions submitted. This work having been completed, it was moved by Dr. Searle that within a month four complete sets of questions be sent by each of the three sub committees to the secretary of the Board of Regents on the subject of therapeutics, including practice and materia medica. Carried. It was moved by Dr. Moore that, previous to printing the sets of examination papers, Dr. Lewi be requested to edit, arrange in logical sequence, and revise all questions to be submitted at the licentiate examinations. Carried. The meeting adjourned subject to the call of the secretary of the Board of Regents. The Questions Board is made up by each of the three State boards of medical examiners' appointing two members from its separate board. Dr. Tuttle was unavoidably absent.

The Kings County Medical Association.—The special order for the last meeting, on Tuesday evening, the 13th inst., was a paper on Quantitative Tests for Urea, by Dr. J. C. Bierwirth.

The Mississippi Valley Medical Association.—The members and others invited were entertained by Dr. and Mrs. I. N. Love on Wednesday evening, the 14th inst.

Virchow's Seventieth Birthday was celebrated by the president and the medical faculty of the Johns Hopkins University, Baltimore, on Tuesday evening, the 13th inst., by brief addresses followed by a social gathering.

The Vermont Medical Society.—The seventy-eighth annual meeting was held at Burlington, on October 15th and 16th. Three sessions on the first day and two on the second were fully provided for in addresses, papers, and discussions. Dr. O. B. Douglas, of New York, read a paper on The Diseases of the Upper Air-passages.

A Warning.—Dr. John A. Cutter warns the medical men of New York to beware of a powerfully built man with well-sunburned face, mustached, who calls himself an engineer, displays considerable knowledge of steam engines and of maritime and custom-house matters, and professes to bring a box of curios from South America or other countries from a physician's old patient whose name he obtains by a process known to himself only. Such a man, says Dr. Cutter, swindled a very astute business man and broker and him (Dr. Cutter), and has obtained possession of one of his cards.

The Hudson County (N. J.) Medical Society held a meeting on October 6th, at which Dr. Thomas H. Manley, of New York, read, by invitation, a paper on The Ætiology of Inguinal Hernia in the Male.

Changes of Address.—Dr. J. G. Hirous, to No. 152 West Forty-ninth Street; Dr. F. A. Jewett, to No. 282 Hancock Street, Brooklyn.

The Death of Dr. Christopher Johnston, of Baltimore, is announced as having taken place on Sunday, the 11th inst. Dr. Johnston was in the sixty-ninth year of his age, and for many years had been a prominent practitioner and teacher of medicine.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 27 to October 10, 1891:*

EWING, CHARLES B., Assistant Surgeon, will continue on duty as attending surgeon and examiner of recruits, St. Louis, Mo.

CROSBY, WILLIAM D., Assistant Surgeon, is relieved from duty at Fort Pembina, N. D., and ordered to Fort Missoula, Mont., for duty.

REED, WALTER, Captain and Assistant Surgeon, is relieved from duty as attending surgeon and examiner of recruits at Baltimore, Md., and ordered to Fort Snelling, Minn., upon completion of his duties as member of Army Medical Board.

KIMBALL, JAMES P., Surgeon, is relieved from duty at Fort Supply, Indian Territory, and ordered to Fort Clark, Texas.

PATZKI, JULIUS, Surgeon, is relieved from duty at Fort Huachuca, Arizona Territory, on expiration of present sick leave, and ordered to Fort Supply, Indian Territory.

ALEXANDER, CHARLES T., Colonel and Chief Medical Purveyor, is relieved from duties of Attending Surgeon and Examiner of Recruits in New York city, and assigned to the charge of the medical purveying depot in that city.

BANISTER, JOHN M., Assistant Surgeon, is granted leave of absence for four months.

FORWOOD, WILLIAM H., Surgeon, is granted leave of absence for one month on account of sickness.

SUTER, WILLIAM N., Assistant Surgeon, is granted leave of absence for one month, to take effect on or about October 15, 1891.

Society Meetings for the Coming Week:

Monday, *October 19th:* New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *October 20th:* American Public Health Association (Kansas City—first day); New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburgh Medical Association; Medical Societies of the Counties of Kings, St. Lawrence (semi-annual), and Westchester (White Plains), N. Y.; Hunterdon, N. J., County Medical Society (Flemington); Baltimore Medical Association.

Wednesday, *October 21st:* American Public Health Association (second day); New York Academy of Medicine (Section in Public Health and Hygiene); Harlem Medical Association of the City of New York; Northwestern Medical and Surgical Society of New York (private); Medico-legal Society; New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.

Thursday, *October 22d:* American Public Health Association (third day); New York Academy of Medicine (Section in Obstetrics and Gynæcology); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

Friday, *October 23d:* American Public Health Association (fourth day); Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

Saturday, *October 24th:* New York Medical and Surgical Society (private).

Letters to the Editor.

WHITE OF EGG IN THE TREATMENT OF SORE NIPPLES.

Madura, India.

To the Editor of the New York Medical Journal:

Sir: I wish to lay before the readers of the *Medical Journal* a remedy which in my hands has been most successful in that distressing complaint, the sore nipples of nursing women. It is the painting of the nipples several times a day with the white of egg. This soothing albuminous covering forms a delicate film over the abraded nipple, and the surface is soon—within a few hours, except in severe cases—entirely healed.

I believe that there is no necessity for excoriations or cracks to occur on the nipples of nursing women if the first tender feeling is met promptly by this application. It is a remedy which can be had at a moment's notice in any household and easily applied with a camel's-hair brush or a feather.

Case I.—Mrs. P. The nipples began to be painful on the fifth day. White of egg was ordered to be applied. After a few hours the pain had become much more bearable, and the next day it had entirely disappeared. There was no further trouble, except that applications had to be made now and then for a day or two as the pain reappeared. With the previous baby nursing had had to be given up on account of cracked nipples.

Case II.—Mrs. K. This patient I saw in consultation on the twelfth day. Both nipples were very painful. In the right nipple there was a deep crack. Nursing caused the usual agony of such conditions. The baby occasionally vomited bloody milk. White of egg was ordered for both nipples. The right breast was not nursed by the baby for three days, distention being relieved by the breast pump, and also a belladonna plaster was applied intermittently to lessen secretion. At the end of three days the crack was quite healed and nursing was carried on for several months. Applications were made at times when the nipples became tender.

Case III.—Mrs. V. On the third day the nipple of the right breast became slightly abraded, and pain was bitterly complained of. White of egg was ordered to the nipple. Next day the pain was bearable. The patient stated that during the night pain had appeared in the left nipple, and she began the applications to that nipple also. A tendency to abrasion continued in both nipples for several weeks, but by constant applications she was able to nurse her baby with little discomfort.

The albumin may best be applied just after nursing, while the nipple is still moist from the baby's mouth. As somewhat of a thick film is formed, it is well for the nipple to be moistened with a soft cloth dipped in water just before the baby is again put to the breast. The efficiency of the albumin is heightened by allowing it to dry on thoroughly before drawing the clothes again over the breast.

Frank Van Allen, M. D.

Proceedings of Societies.

AMERICAN ORTHOPÆDIC ASSOCIATION.

Fifth Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

The President, Dr. A. B. Judson, of New York, in the Chair.

Orthopædic Surgery as a Specialty was the title of the president's address. (See page 393.)

Dr. N. M. Shaffer, of New York, defined orthopædic surgery as that department of surgery which included the prevention, the mechanical treatment, and the operative treatment of chronic or progressive deformities, for the proper treatment of which special forms of apparatus or special mechanical dressings were necessary.

Dr. V. P. Gibney, of New York, proposed a definition as follows: That department of general surgery which includes the prevention, the mechanical treatment, and the operative treatment of chronic or progressive deformities.

Orthopædic Nosology.—Dr. W. R. Townsend, of New York, advised the construction of a uniform nomenclature for orthopædic affections, to facilitate the taking of histories and to increase the value of reports of cases. A committee was appointed for this purpose.

The late Mr. Thomas.—Dr. A. J. Steele, of St. Louis, paid a friendly tribute to the late Mr. Hugh Owen Thomas, of Liverpool, a corresponding member of the association, whose methods had been so widely discussed, and whose influence was felt in many branches of orthopædic practice.

Crural Asymmetry and Lateral Curvature.—Dr. H. L. Taylor, of New York, described two instances in which the leg was two inches and an inch and an eighth short, respectively. Both cases were in young women. The short limb was larger and stronger; the shortening was chiefly below the knee, and there was no lateral curvature.

Dr. A. Hoffa, of Würzburg, Germany, described a specimen which proved that in one instance the shortness was due to union of the neck and shaft of the femur at an acute instead of an oblique angle.

Dr. F. Beely, of Berlin, illustrated, with specimens of lateral curvature and ingenious models, the changes which occurred in the bodies of the vertebræ preceding rotation, and explained how the paraspinous sulcus was shallow and broad on the concave and deep and narrow on the convex sides, a condition which was reversed in the lumbar region by the absence of ribs.

Spina Bifida and Club-foot.—Dr. H. A. Wilson, of Philadelphia, related the case of a child of four years. The ordinary methods of reducing the deformity of the feet excited suppuration, which resisted treatment for six months—as long as the patient remained under observation. There were sensory paralysis and deficient circulation in the lower extremities. The same intolerance of surgical treatment thwarted all attempts to treat the spinal tumor.

Dr. L. A. Weigel, of Rochester, had had similar trouble with a similar case, but found that when the child was older it was possible to treat the deformity of the feet with success.

Dr. A. E. Hoadley, of Chicago, related a case of spina bifida in which a good result had followed an operation in which he had not attempted to repair the vertebral deficiency, but had simply turned up large flaps and united them by silk sutures.

Dr. T. M. L. Chrystie, of New York, reported a case of congenital equino-varus, with absence of the great toe and the contiguous bones of the instep. Mechanical treatment speedily reduced the deformity, with a gain of symmetrical gait.

Dr. W. E. Wirt, of Cleveland, related an interesting and unusual case of club-hand and club-foot, with other congenital malformations.

Dr. Hoffa said it was evident that all cases of club-foot did not have the same causation. The cases reported were due to some fault in the earliest stages of development.

Spastic Paralysis and Spina Bifida.—Dr. W. N. Bullard, of Boston, reported a successful operation by Dr. C. L. Scudder, of Boston, for the relief of spastic paraplegia in a child with spina bifida. He thought the paraplegia was not due directly to the spina bifida, but to the accompanying hydrocephalus. He advocated electrical treatment, and faradization rather than galvanism.

Dr. Weigel reported a case in which division of all shortened tissues and the use of a brace had secured a favorable result.

Deformity after Knee-joint Excision.—Dr. J. C. Schapps, of Brooklyn, said that after excision the two united epiphyses made a mass of soft bone in each end of which was inserted a long lever. With this leverage it was possible to restore and maintain a straight limb by simple mechanical treatment.

Dr. A. M. Phelps, of New York, thought that recurrence of deformity could be prevented by liberal resection of the hamstrings.

Dr. Hoffa said that relapse often occurred from incomplete removal of diseased tissue, and that when excision was done in early life and all disease removed, marked shortening would not occur.

Dr. Beely said that flexion could be prevented by overcorrection, but at the risk of further overcorrection as the result of locomotion. Apparatus designed to prevent recurrence of deformity should relieve the limb from the weight of the body.

Dr. Taylor objected to free division of the hamstrings, as these muscles were useful in balancing the pelvis on the femur, even after motion at the knee was abolished.

Dr. J. D. Griffith, of Kansas City, had prevented flexion by removing all the disease, and without dividing the hamstrings.

Dr. Schapps said that in many patients under ten years of age excision was to be preferred to mechanical treatment.

Knee Troubles in Locomotion.—Dr. Shaffer related a number of cases in which an elongated patellar ligament had caused pain and difficulty in locomotion.

Dr. ApMorgan Vance, of Louisville, thought that the ligament might become shorter if not constantly stretched by use. Rest was indicated.

Dr. Gibney cited a case in which rest for a year and a half had not caused shortening.

Dr. Shaffer said his patients had been benefited by giving lateral support, thus converting the joint into a true hinge.

Atrophy in Joint Disease.—Dr. E. G. Brackett, of Boston, argued that atrophy was due to disuse and not entirely to reflex irritation.

Dr. A. G. Cook, of Hartford, said that atrophy of the foot, often very marked, could be only the atrophy of disuse.

Dr. J. K. Young, of Philadelphia, believed that the atrophy in question was the result of reflex interference with nutrition. In hip disease it appeared first in the thigh muscles, especially the adductors.

Atrophic Elongation.—Dr. Roswell Park, of Buffalo, described the atrophic elongation conspicuous in the lower extremity. As the result of disuse from disease, with avoidance of pressure on the bone ends, the bone lengthened more rapidly than its fellow. This was illustrated in growing children with disease of the tibia or femur, and was noticeable in some cases of hip disease.

The Treatment of Hip Disease.—Dr. Phelps said that traction and fixation should be enforced to prevent destruction by intra-articular pressure. Ankylosis was the result not of fixation, but of disease. The patient should be put to bed from three weeks to four months, and should then wear the lateral-traction fixation splint which was exhibited. Children under three years were placed in the plaster-of-Paris portable bed, which was also shown.

Dr. Wirt exhibited a new device for traction in which the force of the lever was changed into rectilinear instead of circular motion, without key, screw-driver, wrench, buckle, or strap.

Dr. R. H. Sayre, of New York, said the invention gave accurate and easy adjustment in the direction of traction, but in the direction of relaxation the control was defective.

Dr. A. J. Gillette, of St. Paul, was satisfied with the results obtained by the use of Thomas's splint.

Dr. Vance said he practiced fixation at the hip, but believed much depended on the surroundings of the patient.

Dr. Shaffer believed the best results could be obtained by the use of the long Taylor traction splint. He thought results should not be reported till six years had passed, as relapses were not uncommon.

Dr. John Ridlon, of New York, said a splint should secure immobilization by antero-posterior leverage, as in Thomas's splint, by an action identical with that of the Taylor spinal brace.

Dr. Steele approved of the combination of the English method of rest with the American plan of traction.

Dr. Taylor practiced rest in bed with traction in the acute stage, to be followed by a splint which allowed of locomotion.

Dr. Sayre thought but few cases required lateral traction. When the inflammation had ceased, he applied passive motion. If the pain and tenderness following lasted more than twenty-four hours, the passive motion had not been rightly used.

Dr. E. M. Moore, of Rochester, believed that a joint only moderately inflamed demanded motion. He employed traction with a certain amount of motion.

Congenital Dislocation of the Hip.—Dr. Phelps exhibited apparatus for the treatment of this affection, and described his method and its results.

Dr. E. H. Bradford, of Boston, had modified the apparatus in previous use by adding an appliance with which the patient was allowed to walk about. The joint was thus protected as in convalescence from hip disease. These appliances he had made of aluminium for the sake of lightness.

Dr. C. C. Foster, of Cambridge, said the best recorded result had been obtained by Dr. Buckminster Brown, whose patient was treated by mechanical means in bed.

Dr. Hoffa had operated by deepening the acetabulum, which was practicable from the thickness of the pelvis at this point. At first he had sewed a periosteal flap over the trochanter, but this was unnecessary. Two months ago he had examined his first case—two years after the operation—and found a movable joint, freedom from the characteristic gait, and absence of lordosis.

Mr. Howard Marsh, of London, divided these cases into those in which the bone slipped about on the wall of the pelvis and those in which it was fixed. . The majority belonged to the second class, and in these an operation was useless, but was more properly applicable to those cases of the first class in which the head was high and movable. The anterior position was the most favorable, because lordosis, which depended on the backward displacement of the head of the femur, was absent.

Dr. Ridlon said that, as subjects for treatment, anterior dislocations were more hopeless than posterior ones.

Dr. DeF. Willard, of Philadelphia, said treatment should be by forcible attempts at reduction, to excite inflammation, followed by traction and systematic exercise.

Malignant Disease and Pott's Disease.—The President reported three cases in which Pott's disease and malignant disease of the vertebræ had been confounded by himself and other observers. In one the diagnosis had been made ante mortem. The patients were four and a half, thirty-five, and forty-two years old, respectively. The chief diagnostic points were: Deformity, present in Pott's disease, absent in malignant disease; local disability; and local pain, both absent in Pott's and present in malignant disease.

Dr. Willard had seen two cases in which his diagnosis was confirmed post mortem.

Dr. Gibney reported a case in a man of forty years in which he and others had been baffled in diagnosis. There was sarcoma of the fifth and sixth cervical vertebræ.

Mr. Marsh related the case of a child which was extremely difficult to diagnosticate, and which proved to be malignant in character.

Syphilitic Pott's Disease.—Dr. Ridlon said that in this form the onset was more rapid, the pain and disability were greater, the kyphosis was sharper in outline, and abscesses often appeared before deformity. If recognized lesions of hereditary or tertiary taint were present, treatment should be by large doses of mercury and iodide of potassium.

Dr. B. Lee, of Philadelphia, referred to cases of this origin which had come under his observation.

Pott's Disease in the Old.—Mr. Marsh had observed instances of suppurative tuberculosis in the metacarpus, tarsus, testis, cervical glands, knee, and hip in eight patients between sixty-three and seventy-three years old. But senile tuberculosis of the spine was most rare. He had seen two cases. The patients were sixty-four and sixty-five years old, respectively. The College of Surgeons of London possessed an osseous specimen of the action of senile tuberculosis of the upper cervical vertebræ. In his *Studies of Old Case Books*, Sir James Paget had recorded a case of Pott's disease in a gentleman of fifty-five, attended with angular curvature.

Dr. Sayre recalled the case of a patient, aged fifty-five, who recovered from Pott's disease with paraplegia and abscesses.

Pott's Disease and Pregnancy.—Dr. T. H. Myers, of New York, had collected twenty-five cases of labor in fifteen patients recovered from Pott's disease. In no instance did caries recur. But of seven patients in whom the disease developed during pregnancy, three died, and three were left paraplegic. Normal parturition often followed in cases of deformed pelves whose measurement would indicate that it was impossible. These patients should be examined by the obstetrician early in gestation.

Dr. Taylor knew of many cured patients whose marriage had been followed by the birth of healthy children.

Dr. G. W. Ryan, of Cincinnati, thought it was a question if the tuberculous should be allowed to marry. He knew of married women deformed by Pott's disease who had borne and reared healthy children.

Dr. Steele said one of his patients recovered from Pott's disease had borne six healthy children.

Dr. Lee said that one of his patients with a large lumbar kyphosis had borne twelve children who, with the mother, were all in good health. He thought Pott's disease, even in the lumbar region, rarely produced narrowing of the pelvis.

Dr. Vance had seen a number of cases in which this deformity had not made labor of more than average difficulty.

Paraplegia in Pott's Disease.—Dr. Brackett said that relief from paraplegia might be confidently expected from continuous extension and fixation, even in cases of eighteen months' standing. This should be continued for some time after recovery.

Dr. Young reported two cases of complete recovery in which there had been absence of sensation, a feature always of grave import.

Dr. Shaffer referred to a case in which the autopsy showed that a portion of the eighth dorsal vertebra had nearly cut through the spinal cord, leaving but a slender thread.

Dr. Hoffa said that in these cases the spine should be put absolutely at rest. He had collected accounts of thirteen operations within the vertebral canal. Two patients died at once, two recovered, and would perhaps have done so any way. In the others there were immediate good results, but relapses soon occurred. The operation had no great future before it, and should be limited to cases in which the processes alone were affected.

Dr. S. Ketch, of New York, had now under treatment a patient who had been paraplegic for five years, but he still maintained a hope of effecting a recovery.

Dr. Hoffa suggested that an abscess might be exerting pressure on the cord.

Mr. Marsh said paralysis rarely depended on the pressure of an abscess, but on softening of the cord, pressure of a displaced sequestrum, or (most common) pressure from exudation. He would only operate after thorough trial of rest.

Dr. Willard said we could not absolutely diagnosticate the cause. When there were extensive inflammatory deposits about the arches, laminectomy might relieve the posterior pressure and allow of expansion of the cord.

Dr. Lee said that in all cases of this form of paraplegia suspension would materially hasten recovery.

Abscesses in Pott's Disease.—Dr. Townsend thought that, as a rule, these abscesses should not be opened. In some cases aspiration should be done, and in others the cavity should be opened and drained to prevent sepsis and danger to life. His views were based on the history of three hundred and eighty patients, seventy-five of whom had abscesses.

Dr. Young suggested the division of lumbar abscesses into external and internal, according to their relation to the psoas fascia.

Dr. Vance advocated aspiration, repeated as often as fluid was detected. In this way he cured three out of five cases. The deposit was thus kept small, and the extent of subsequent operations, if necessary, was limited.

Mr. Marsh had rarely obtained a good result by the use of the aspirator.

Dr. Ryan said he had found aspiration to be a poor dependence. When interference became necessary, he believed incision to be the most conservative and effective procedure.

Mr. Marsh said that in his observation it was best to open freely, evacuate thoroughly, and then apply pressure to assist in closing the cavity.

Dr. B. E. Hadra, of Galveston, said that, on general surgical principles, such abscesses should be evacuated.

Dr. Willard would let dormant and caseating foci alone; liquefacting collections he would aspirate and inject with iodoform emulsion, and, if true pus was present, he would incise, wash out with sublimate solution, and avoid undue manipulation, which might cause fissures that would let the tuberculous poison into the system. He would then suture the incision and inject iodoform and boiled olive oil.

Dr. Bradford said that, while he did not think the danger from opening large abscesses was so great as had been thought by some, he was aware that absorption of the contents of such abscesses was not at all uncommon.

Mr. J. E. Moore, of Minneapolis, said the evacuation of a spinal abscess was a matter of great surgical responsibility, as it was a cavity difficult to protect from infection after operation.

Dr. Hoffa would open only those abscesses which caused severe pain or were likely to give rise to septicæmia.

Dr. Lee would never open an abscess of this kind unless compelled to by the conditions mentioned by the last speaker.

Dr. Ketch said there was danger that in our anxiety to treat a secondary feature we might neglect the disease itself.

Dr. Shaffer would not say that incision was never advisable, but generally it was wrong to open one of these abscesses. A very large abscess could not be washed out, and its disappearance might be confidently expected, especially if efficient mechanical treatment was practicable.

Dr. Myers said that it had been proved that it was impossible to completely remove bacilli from the abscess cavity, and that bacilli-infected wounds at times healed primarily. Infection was more imminent after incision, because the wound laid open channels of absorption.

Wiring the Vertebral Processes.—Dr. Hadra suggested that the spinous processes at the seat of disease be exposed and then firmly wired together to secure rest and prevent deformity. The operation, as he had performed it for fracture of the cervical spine, was extremely simple and effective.

Dr. Sayre thought the wires would not bear enough force to remove the weight from the vertebral bodies, and that outside protection would be necessary to prevent lateral and rotatory disturbance.

The President thought it was a question whether wiring was applicable through the long periods in which consolidation was delayed. Intolerance of the skin always prevented such pressure as we would like to make on the kyphos. The method proposed circumvented this difficulty.

Dr. R. Whitman, of New York, said that due consideration should be given to the difference in development between the growing and adult spine.

Dr. Ketch did not see how the proposed operation could take the place of apparatus.

Dr. Moore said it was a most simple and harmless procedure, and, notwithstanding the theoretical objections, he would accept the first favorable occasion to try it.

The Prognosis and Treatment of Pott's Disease.—Dr. Ketch had learned from seventy-five cured cases that in length of treatment and degree of deformity the upper region of the spine was most favorable and the middle least of all, that paraplegia more frequently accompanied disease in the upper than in the lower region, and that cases of traumatic origin recovered sooner than those of tubercular origin. Sudden deaths sometimes occurred in cervical caries from interference with respiration.

Dr. B. Bartow, of Buffalo, said that the earliest important sign in the dorsal and lumbar regions was lateral curvature, dependent on nervous tenderness. Apparatus should be constructed to oppose the rotation accompanying the lateral curvature as well as the antero-posterior deformity. He used the plaster-of-Paris jacket applied to effect these objects.

Dr. Foster said that extension in bed was the best method in the acute stage. Extension should be made by light weights, the cords leading over the head and foot of the bed and being attached to waist-belts, chest-belts, and head-straps.

Dr. Weigel reported a case of cervical Pott's disease, with abscess and paraplegia, successfully treated by extension in bed.

Dr. Ridlon had kept patients in bed from three to four years, and had never seen a case in which the patient was not benefited generally and locally.

Dr. Ryan said recumbency was the ideal treatment, but it was in many cases impracticable. He had found split plaster jackets efficient after the acute stage.

Dr. Lee said that many years ago, when the plan had fallen into entire disuse, he had been the first to adopt suspension from the practice of Dr. J. K. Mitchell. The apparatus was Le Vacher's head support and jury-mast attached to a chair or go-cart or to a door-way swing.

Dr. Sayre said that in the cervical and upper dorsal region a metal posterior splint supported on the pelvis should be used with a jury-mast, and in the lower dorsal and lumbar regions a plaster-of-Paris jacket with a jury-mast. Recumbency should be practiced in the acute stage; children should be placed in the wire cuirass.

Dr. Ketch had been disappointed with the plaster of Paris and jury-mast in the cervical and upper dorsal region. He commended the Taylor apparatus and chin-piece. In the lumbar region almost any supporting apparatus would secure a good result.

Dr. Taylor said that the antero-posterior lever secured rest and protection and combated deformity. Old and neglected cases were especially amenable to treatment, as ankylosis was later and rarer than was generally supposed. Abscesses and paraplegia did not forbid a favorable prognosis.

Dr. Bradford said that the plaster-of-Paris jacket was the readiest means, but had its disadvantages; that a steel brace gave better support, but demanded more skill and care; and that recumbency was the surest way to prevent deformity, but, as a rule, was impracticable for the long periods covered by the disease.

Typhoid Spine.—Dr. Gibney reported an additional case of typhoid spine in a man of forty-five years, in which, contrary to what had been observed in the cases previously reported, there was marked deformity in the cervical region, dating back to typhoid fever at the age of twenty-two. Two years of pain and disability had immediately succeeded the typhoid attack. Usually the symptoms had not appeared till a month or two after the fever.

Dr. Hadra recalled an epidemic of typhoid with so much tenderness on pressure of the vertebræ that the affection was at first thought to be meningitis.

Rheumatic Spondylitis.—Dr. Ryan said that this rare affection should not be confounded with rheumatoid arthritis of the spine. It was usually accompanied by rheumatic manifestations elsewhere. In the early stage the symptoms resembled those of tubercular spondylitis. The subsequent deformity was not angular, but resembled that of senile kyphosis. Treatment should be directed to the relief of pain by support, cautery, and medication. In the chronic form, when the pain had lessened, mobility should be encouraged by passive motion.

Dr. **Hoadley** deplored the confusion which was found in the nomenclature of these conditions, which produced such a variety of results. He thought both rheumatism and osteo-arthritis were microbic diseases. If ligamentous structures interfered with motion, passive motion was proper.

Dr. **Lee** was reminded of a case that had at first been thought to be spinal myalgia, but had proved to be gouty disease of the cartilages, an infrequent affection. Apparatus had afforded relief, but of course not a cure.

Dr. **Ryan** said that gouty spondylitis was generally attended by manifestations in other parts of the body. He had failed to state that his patient had had limited respiratory movements.

Dr. **Vance** related a case in which there had been, in addition to the spinal affection, complete immobilization of the thorax with chiefly diaphragmatic respiration.

Dr. **Bartow** had seen a case in which relief was afforded by the spinal jacket.

Dr. **Gillette** reported a case which, at the first glance, resembled the deformity of Pott's disease, but had proved to be rhachitic in its ætiology. Improvement followed a few days after suspension was begun.

Torticollis.—Dr. **Whitman** inferred, from the study of two hundred and sixty-four cases, that torticollis was more frequent in females than in males, and that the two sides of the neck were equally liable. Acquired torticollis, being often the result of suppurating cervical glands, should be treated at first by mechanical support to secure rest and prevent deformity. Subsequently, division of contracted parts, with careful after-treatment, should be practiced.

Dr. **Hoffa** said that cases of fœtal origin showed immediately after birth an atrophy of the face and head.

Dr. **Whitman** thought that the asymmetry of the face and head was a late feature of torticollis due to muscular action on the growing bones.

Sacro-iliac Disease.—Dr. **Lee** said the sequence of events was as follows: Injury of the synchondrosis; subacute inflammation; irritation of the nerves of the joint, transmitted to the nearest plexus; and resulting pain in the sciatic. The sciatica should be considered as the result, not the cause, of all the trouble. In nine cases out of ten neuralgia was the effect and not the cause of any trouble. As stooping in sacro-iliac disease was injurious, he had devised a handy instrument with which the patient could pick up an object from the floor while remaining erect.

Miscellany.

A Theory of Sex.—Mr. Andrew Wilson, F. R. S. E., F. L. S., etc., late lecturer on zoology and comparative anatomy, Edinburgh Medical School, etc., contributes the following to the *Lancet* for September 26th:

Some years ago I placed on record in the pages of the medical journals a short statement regarding a theory of sex which it seems advisable to recapitulate at greater length, if only by way of affording opportunity for the discussion of this interesting and fascinating topic. Regarding a theory as a guide to the elucidation of truth, and considering a correct theory as one which explains all the facts and is contrary to none, I submit my views for criticism on this rational basis. It may be proved that I have erred in my conclusions through the deficiencies of my premises, and that my notions of sex evolution are untenable altogether; but at the most and best I submit my views as constituting a provisional and tentative hypothesis only, and as one which subsequent research will either confirm or altogether refute. Beginning thus with a free hand, let me briefly state the gist of the theory in question. It is a tolerably safe maximum in biology, and in other departments of science as well, that we should not ascend into the clouds for explanations of things which lie at our feet. Sex should be, and is, no more mysterious as to its origin than, say, the nature of liver functions or of pancreatic duties. It only presents greater difficulties, perchance, in the way of solution, and is environed by more complex conditions than is the question of hepatic work. Yet to discover the conditions to which the causation of sex is due, we may not go far astray if we search among the common functions and actions through which life at large is maintained and conserved. Amid such functions, that of nutrition stands out in bold relief as one which exercises a very prominent influence on the development of living tissues. Sir James Paget long ago pointed out how nutrition affected development, and Herbert Spencer has emphasized this teaching in many ways in his biological discussions. In so far as the origin and determination of sex are concerned, it is therefore a perfectly just observation that nutrition is likely to play a very important part in its evolution. This primary consideration is important, because, if it may be suggested with a fair show of reason that nutrition lies at the root of sexual differentiation, we may claim to have at least paved the way for the further and scientific consideration of the whole subject.

Well-nigh every recent theory of sex which has had a basis of scientific nature, as distinguished from theories which are merely the outcome of isolated and detached ideas regarding sexual differentiation, has started from the standpoint of nutrition as the one factor of import in sex production. As an illustration of a recent theory of sex, that elaborated and illustrated by Messrs. Geddes and Thomson in their *Evolution of Sex* may be mentioned. These authors hold that a *catabolic* habit of body (or conditions in which there is a tendency to the predominance of waste over repair) favors the production of males. The opposite habit, that of *anabolism*, which favors constructive processes, on the other hand, tends to the production of females. Here it is evident nutrition is regarded as the starting-point of everything. It is the general factor which acts upon the special phases of sexual development. Experimental evidence is called to aid the induction thus made. High-fed tadpoles turned out males in gross excess, while "left to themselves the percentage of females was rather in the majority." How far the case of tadpoles can be regarded as applying to the mammalia is, of course, a serious consideration with the critic of these facts. We must not forget that while the adult female is almost always the stronger and the best developed in lower life, the case is reversed among mammals. This alone is a biological fact worth bearing in mind; for if the male be the stronger in the human species, as he undoubtedly is, it seems illogical to conclude that the laws of sex differentiation in lower life, with its bigger females, should apply to higher existence.

What help we obtain from embryology is naturally of great importance in the matter before us. Every one knows that the male and female generative organs are developed each out of a common or indifferent type, just as their adult homologies are plainly enough indicated. About the sixth week of intra-uterine life the genital glands begin to appear. The male organs are formed by specialized developments of the common type, just as the female organs appear in their turn through equally specialized developments of the same type. If the development of an animal shows us the history of its race evolution—that is, if embryology be a guide to ontogeny—then it seems clearly enough demonstrated that the sexes of higher animals have arisen out of a once common or hermaphroditic type. To put the matter plainly, it would seem as though each fœtus at its outset hangs or rests in equilibrium as regards its sex. Something occurs in its history which gives it a bias to the male or to the female side, and it is precisely the nature of that something which it is the business of exact science to determine, and of theory to provisionally indicate.

Like my predecessors in the domain of theoretical explanation, my faith is large in the influence of nutrition as the factor which determines sex. That subsidiary causes, heredity, temperament, and other influences may also operate to this end, I am far from denying; but to nutrition, even from the period of the ovum and its fertilization, I attribute the main cause of sex-differentiation. I take for granted that menstruation is really ovulation, and that the latter process consists in the development and extrusion of ova which are fertilized, in man, usually in the Falloppian tube. Now, prior to fertilization there can, of course, be no question of sex. Fertilization alone determines the beginning of embryonic development, and shortly stated, my theory of sex therefore holds, that when an ovum is fertilized *before* the occurrence of the menstrual period it will develop a male embryo, while, conversely, if the ovum is impregnated *after* the menstrual period, it will result in a female conception.

These statements require further explanation. By pre-menstrual fertilization I mean the impregnation of an ovum which would have been given off and would have perished in an impending menstruation. Suppose a woman due to begin menstruation on the first of the month, and that coition and impregnation take place, say, during the last days of the preceding month, the impending period will of course be "missed." This I term pre-menstrual impregnation, and this I hold will result in a male birth. Contrariwise, let us suppose the woman menstruates from the first to the fourth of the month, and that intercourse occurs, say, on the fifth or sixth and is followed by impregnation —this I call a post-menstrual impregnation, such as I hold will produce a female birth.*

I can anticipate many objections to my theory, of course, but I ask for its free criticism and for a practical investigation of its merits. I take it for granted that the old idea of a special proclivity to conception just before and just after menstruation is founded securely enough on common clinical experience, domestic and professional alike. At least I hold to the received notion (*pace* my friend Mr. Lawson Tait) that ovulation and menstruation, if not always concurrent or interdependent, still exhibit a close enough relationship to warrant my founding a theory upon their mere existence. Now, if there does exist this pre- and post-menstrual liability to conception (with the usual calculation of pregnancy from the date of the last menstrual period), is it conceivable that the time and circumstances of conception should be without a due influence on the product of conception? That which specially results, in my opinion, is an effect upon the nutrition of the ovum. An ovum, we know, will live for a certain undetermined length of time in the Falloppian tube and uterine cavity. When first extruded from the ovary, it is reasonable to conclude the ovum is in the perfection of its development. It is ready and ripe for fertilization, and all its powers and tendencies are in the full flush of their vigor. I am purposely supposing that the extrusion of ova takes place prior to the appearance of the menstrual flow itself—a perfectly warrantable belief in its way—just as the life of the ovum persists after the flow has ceased, and fertilization at this early stage therefore finds a robust ovum ready whereon to operate. It is the reverse with the ovum at the post-menstrual period. The ovum has lain in the tube or uterus, and has lost vitality. Immeasurably small and insignificant may be the loss; still it seems reasonable to believe that the further off an ovum is from its extrusion, the less vital and vigorous must it be. Thus, I opine, if impregnation acts on an early and robust germ cell, it receives a nutritive bias which sends it (as the stronger ovum) to the male side; while if impregnation be delayed, we obtain a weaker ovum, or less vigorous germ, whose lessened nutrition swings it over to the weaker female side. Hermaphroditism, according to this theory, would result from fertilization of an ovum in stable equilibrium. If impregnation occurred at what we may call the "middle term" of its existence, when the ovum obtained no definite bias in either male or female direction, we may presume that an indefinite or mixed type of sexuality would result.

If any modification of my theory is admissible, I may here suggest that it is not necessary that we should bind ourselves absolutely to the terms "pre-menstrual" and "post-menstrual" as indicating any rigidly defined periods of fertilization. I believe that such terms are actually represented in the phenomena of impregnation, and that, taking the occurrence of menstruation to represent a physiological epoch, as it were, we are justified in distinguishing between impregnation occurring before the establishment of the monthly crisis and that occurring after its cessation. Alternatively it might be held that neglecting the menstrual period, the tendency of any ovum to develop a male embryo depends on its early fertilization after its escape from the ovisac. The longer impregnation is delayed after the extrusion of the ovum, the greater is the tendency, on this view of things, to the development of the less robust female side. To my way of thinking, it is anabolism in mammalian ova which produces males, and catabolism which gives origin to females.

Such, briefly stated, are the results of my cogitations on the subject of sex. Manifestly crude as my theory may be, I venture to think it is worth the attention of obstetricians especially. It has been possible now and then for me to obtain information from married friends who have been sufficiently interested in the topic to note the results of their family increase, and one or two of a scientific turn of mind have been able, as they say, to verify my conclusions. Obviously, proof is difficult of collection, but obstetricians at least may be asked to note and observe facts as they stand, and may possibly take the trouble to place on record evidence for or against my belief. It is as a provisional hypothesis alone that I advance these views. The only justification they require is that they should not travel outside biological probability, and I would fain hope that, in this respect at least, they conform to the rules of reasonable speculation.

A Discussion on Puerperal Eclampsia, in the Section in Obstetric Medicine and Gynæcology at the annual meeting of the British Medical Association held in Bournemouth, July, 1891, is published in the *British Medical Journal* for September 26th.

Dr. A. L. Galabin said: The causation of eclampsia has always been a fascinating subject for discussion, and is a problem by no means as yet completely solved; indeed, recent researches have widened the field of controversy. The time at my disposal will not allow any complete examination of the question, but I must limit myself to indicating what appear to me to be the most interesting points for discussion. As regards ætiology, these are (1) the causation of that form of albuminuria which is associated with eclampsia; (2) the relation between the albuminuria and the convulsions; (3) the explanation of those cases in which the urine is at first free from albumin, and the albuminuria only appears after the convulsions; also of the exceptional cases in which albuminuria is absent throughout.

Some have alleged, in disparagement of the importance from an ætiological point of view of the association of albuminuria with eclampsia, that many pregnant and parturient women have albuminuria without getting any convulsions. This has been founded chiefly on observations by French authorities, such as Blot, Petit, and Hypolite, who found albuminuria in from fourteen to twenty per cent. of women shortly before, during, or just after labor. In many of these the proportion of albumin appears to have been slight, and recognized only by specially delicate tests. On the other hand, some observations in the Guy's Hospital Charity gave a proportion of only two per cent. in parturient women of albuminuria, recognizable in the ordinary way by heat and nitric acid. Moreover, in eclampsia there is generally not only albuminuria, but a diminished secretion of urine, and a still greater diminution in the proportion of urea excreted. Again, women suffering from chronic Bright's disease more frequently than not escape eclampsia, and those who suffer from convulsions are commonly not known to have Bright's disease until either premonitory signs of eclampsia or actual convulsions appear, and therefore may be presumed to suffer from a recent attack of kidney disorderr. I think, therefore, it may be said that there is no evidence that an albuminuria in pregnant women, resembling that associated with eclampsia, but without the occurrence of convulsions, is at all a common complaint.

The special frequency of eclampsia in primiparæ requires explanation, and seems to be due, in part at any rate, to mechanical causes—namely, the greater intra-abdominal pressure which exists in primiparæ and the interference thereby produced with the renal circulation. This could hardly in itself produce inflammation, but would render the kidney more susceptible to any actively exciting cause of irritation. It may indeed be said that the mental condition in primiparæ, the natural dread of a first confinement, in some cases the despondency resulting from a seduction, are important predisposing causes of the eclampsia. They do not, however, seem sufficient to account for the albuminuria, although, by depressing vitality, they may render the patient more vulnerable to any exciting cause of nephritis. Other causes of nephritis, which have been thought to affect pregnant women especially, are the extra work thrown upon the kidneys by the presence of the fœtus and enlarged uterus, and the effect of a reflex nervous irritation having its origin in the pregnant uterus.

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* Investigations into the relative proportions of the sexes in certain nations may reveal facts *pro* or *con.* this theory of sex. Male births, for example, are more frequent among the Jews than female births. Is this fact due to the avoidance of intercourse after menstruation (*i. e.*, during the prescribed period of purification), so that the ovum fertilized would prove to be a pre-menstrual product, because it would belong to the next period due?

Given the existence of nephritis, the oldest explanation of the association of albuminuria with eclampsia—namely, that eclampsia is a form of uræmia, and that a poison retained in the blood is, directly or indirectly, the exciting cause of the convulsions—appears to be still the most reasonable. It has obtained some further support from the observations of Dr. Herman, published in the *Obstetrical Transactions*. Dr. Herman shows how close is the connection between the severity of the convulsions and the diminution of the secretion of urea. He shows also that when after delivery the convulsions cease, immediately or gradually, and the patient recovers, the quantity of urea secreted rapidly improves; but that when convulsions continue and the patient dies this is not the case. It does not necessarily follow that the urea itself, or any derivative from it, is the actual poison at work. When people die from rebreathing respired air—as in the Black Hole of Calcutta—it is supposed that the poison is not so much the carbonic acid as certain ptomaines, waste products of a far more poisonous character, excreted in minute quantities with the breath. It is possible that some such poisonous substances may exist in the urine not yet isolated by the chemists, and that their excretion may be diminished *pari passu* with that of urea.

It does not seem difficult to explain why a pregnant or parturient woman should have convulsions in consequence of a recent nephritis, while in ordinary Bright's disease convulsions generally only occur at a late stage of uræmia due to a granular kidney. In the first place, the form of nephritis associated with eclampsia appears to be specially severe in its effect of diminishing the excretion of solids. Again, in the puerperal woman, reflex excitability is naturally increased in preparation for the process of labor, which is carried on through reflex stimulus. Then there is a source of reflex irritation in the presence of the ovum, the occurrence of labor pains, and the pressure of the fœtus in the cervix or vagina. That this reflex irritation is a veritable cause is proved by the considerable proportion of cases in which the eclampsia commences actually during labor, and by the fact that a uterine contraction is often the starting-point of a convulsion.

In those cases in which there has been an absence of albuminuria throughout it appears that these two causes—namely, increased reflex susceptibility and the presence of a source of irritation—complete the whole pathology.

In some of them a proneness to convulsions is shown by the occurrence of epileptiform fits on previous occasions. They may be compared to those cases in which, apart from either pregnancy or albuminuria, a series of epileptiform convulsions occurs, and sometimes proves fatal, without any lesion being discoverable post mortem.

It does not appear to me to be any disproof of the uræmic theory of eclampsia that, in some exceptional cases, the urine before any convulsion, or immediately after the first convulsion, has been found free from albumin, but albuminuria has supervened afterward. In some of these cases casts have been found in the urine, or the albuminuria has persisted for a long time, thus showing that there was really nephritis, and not merely a passive transudation of albumin due to the venous congestion resulting from the convulsions. In these cases it appears to me that the convulsions may be due to a pre-albuminuric stage of nephritis. Such a stage is recognized in the course of the chronic granular kidney, and it is not unreasonable to suppose that it may exist in an acute disease. For the kidney is made up of several parts, and that which is supposed to be most concerned in the transudation of the albumin—namely, the glomeruli—is not the same as that which excretes urea and other solids. The two may not become affected exactly simultaneously.

It has, however, been supposed by some that the nephritis is not the cause of the convulsions, but that both nephritis and convulsions are the result of some common cause. The researches of Dr. E. Blanc,* of Lyons, have given more precision to this hypothesis. Dr. Blanc claims to have discovered a specific form of bacillus which is the cause of eclampsia. This bacillus he obtained from the urine of patients suffering from eclampsia; it could not be found in the blood. Pure cultures were obtained of this bacillus, and some of the cultures was injected into a vein in the ear of pregnant rabbits. The rabbits suffered from convulsions and dyspnœa, and died. The same bacillus was obtained from their urine. Injections of the same culture into non-pregnant rabbits produced only local inflammation at the site of injection. Injections of the same culture into dogs, even if non-pregnant, produced convulsions, but the dogs recovered after several days.

If a nephritis be considered an intermediate step in the production of these results, these researches, if confirmed, may, I think, be regarded as only supplementing, and not overthrowing, the views previously held as to the causation of the disease; for in many affections microbes may form an essential part of the morbid processes, but yet as great, or even a much greater, part of the causation may lie in the circumstances which rendered the tissues vulnerable to the microbes. Thus, in a common catarrh, the result of cold, microbes are present in the purulent secretions, perhaps also in the tissues, and these microbes doubtless are the reason why severe colds are contagious. In arctic regions, in high latitudes, where microbes are almost entirely absent, the body may be chilled to a far greater degree and catarrhs are hardly ever produced. On the other hand, in malarial regions in the tropics, a chill facilitates the entry of another form of microbe, and a malarial fever, not a catarrh, is generally the result. It appears probable that, in various forms of nephritis, microbes may play a part, and especially in those which result from zymotic diseases.

The view of Dr. Blanc, however, appears to be that the special bacilli cause the convulsions directly, and not through the medium of the nephritis. On this view eclampsia would be a kind of zymotic disease to which only pregnant women and rabbits are liable, and the albuminuria only one of the symptoms, as in other zymotic diseases. I am not disposed to accept this conclusion without further proof, for it must be very difficult to determine how quickly the nephritis might impair the excreting power of the kidney sufficiently to cause uræmic symptoms. The fact that convulsions do occur in ordinary uræmia, though at a later stage, is a point in favor of supposing the pathology of eclampsia to be analogous to that of uræmia from more chronic degenerations of kidney.

Time will allow me to say very little on the important subject of treatment, on which I hope to receive valuable information from the speakers to-day. Many of the modes of treatment in favor are based more or less on theoretical grounds, and it is very difficult to determine their relative value. Statistical comparisons of relative mortality will hardly solve the question, for the most active and heroic remedies are apt to be reserved for the most severe cases, and thus the milder methods, such as the administration of diuretics, bromide of potassium, or chloral, are apt to show the best results, and obtain a factitious credit for efficacy. Thus, in the statistics given by Dr. Auvard, in his valuable recent monograph on eclampsia, the result of no treatment at all shows a mortality of 25 per cent., which is better than the result of the most favorite methods, and better than the average mortality of the whole, which was 31 per cent. Statistics can only be of value if the same method is used for all cases over a definite interval, long enough to eliminate the results of chance.

I would suggest especially for discussion the value of venesection. This is probably the oldest remedy. If the theory is correct that the primary idea of venesection was to let out the evil spirit which was causing the disease, no complaint would seem more suitable than eclampsia for this remedy. While venesection was in vogue generally it maintained its reputation in eclampsia. Since it has gone out of fashion it has fallen, perhaps, too completely into disuse for eclampsia. I can have no doubt, both from recorded cases and from cases I have seen myself, that venesection, especially venesection to a large amount (forty ounces or more), will sometimes stop the convulsions when other means fail. I consider it more doubtful whether it is so valuable as other means to promote the recovery of the patient, and rather suppose that it renders her more liable to death from some complication. It is possible, however, that, with the modern antiseptic midwifery, this risk may have become reduced.

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* *Archiv. de tocologie*, March and April, 1889.

My predecessor as assistant obstetric physician at Guy's Hospital, the late Dr. Phillips, published in the *Guy's Hospital Reports* for 1870 statistics to show the improved mortality in eclampsia obtained by the substitution of the administration of chloroform for venesection. Since 1868 venesection has been rarely (I believe never) used in our charity. In the last fifty cases recorded before the change of treatment the mortality was 30 per cent.; in 34 cases since that time it has been 20·5 per cent. This mortality appears less favorable than it really is, for the slighter cases have not been included in the record. There were only two deaths from eclampsia in 25,489 deliveries in the ten years 1875–'85. At any rate, it compares favorably with the statistics given by other authorities. Thus Dr. Auvard gives 35 per cent. as the mortality of cases treated by venesection.

Venesection may be adopted on one of two different principles in eclampsia: 1. A moderate venesection to relieve the vascular system in cases in which there is extreme venous congestion and embarrassment of the lungs (this is analogous to the venesection practiced sometimes in bronchitis, and it seems to me a reasonable measure). 2. A venesection to stop the convulsions, and for this purpose repeated if necessary, or carried to a very large amount. The statistics which I have just given appear to me rather adverse to this form of venesection.

To other modes of treatment I can only just allude, and leave it to other speakers to discuss them. Thus there is the treatment by large doses of opium or morphine, which *a priori* would seem unpromising, but which has been strongly advocated by American authorities, and of late has been highly praised by the Germans, and especially by Veit.

Diaphoretic measures recommend themselves on theoretic grounds. Among these I invite discussion on another plan much practiced in Germany of late—namely, the use of hot baths, prolonged for an hour or more, and followed up by wet packing. I would ask also for any evidence as to the value of pilocarpine, and the conditions necessary for its safe employment.

Dr. John W. Byers said: In the whole range of obstetric medicine there is no subject of greater importance than puerperal eclampsia. The extreme suddenness with which the complication so often sets in, the high mortality with which it is attended both to mother and child, and the circumstance that there is such diversity of opinion in professional circles, both as to its pathology and treatment—all these facts constitute ample grounds for bringing the subject forward for discussion in this Section.

In medicine, treatment, to be sound and scientific, must be based on a firm knowledge of the causation of the disease with which we are called upon to deal; otherwise we are treating symptoms, and our action is merely empirical. Following this rule, I propose, in the first place, to discuss the various views at present current as to the pathology of puerperal eclampsia, and then to consider how far, if at all, a rational line of treatment can be based on what our present knowledge enables us to state is the causation of the complication. Before entering, however, on a discussion of the theories that have been put forward as to the ætiology of puerperal eclampsia—no matter what view one may adopt—there are three axioms of great importance, which will be admitted, I am sure, by every one:

1. The blood of a pregnant woman is of a peculiar composition; hence it follows that materials circulating in this fluid which, under ordinary circumstances, would have little or no effect, will, during pregnancy and the puerperium, produce marked constitutional disturbances.

2. The nervous system in pregnancy and during labor is in a condition of high tension or increased irritability.

3. It follows as a corollary from 2 that peripheral impressions produce reflexly much more marked effects than would occur under ordinary circumstances.

Ever since the time that Lever made his brilliant discovery in 1842, that in the great majority of cases of puerperal eclampsia there is albumin in the urine, the attention of obstetricians has been directed to the state of the kidneys; and, although at different times an effort has been made to explain the occurrence of this albumin as due to pressure on the renal veins or on the ureters, or as due to increased arterial tension, or to reflex causes acting on the renal circulation from the uterus, or as depending on the circumstance that the function of the kidneys is disturbed from having an increased amount of work to do in eliminating the excrementitious matters of the fœtus and enlarging uterus, I think it will now be granted that in the majority of cases there is distinct evidence of temporary or permanent disease of the kidneys. In support of this view let me adduce the following arguments:

1. In eclampsia the condition of the urine indicates some decided interference with the function of the kidneys. It often contains albumin, blood, renal epithelium, and casts. It is scanty, and at times there is a history of its sudden suppression, and, as Herman has pointed out, the most constant feature in these cases is diminution in the excretion of urea during the fits. In certain cases ophthalmoscopic examination shows changes in the fundus, distinctive of renal disease. Œdema of various parts of the body is often noted.

2. The results of post-mortem examinations show that in fatal cases a diseased state of the kidneys is generally present. In a very able paper read before the Berliner medicinische Gesellschaft, by Professor Leyden, and since published in the *Deutsch. med. Wochenschrift*, March 4, 1886, he defines the nephritis of pregnancy as a disease associated with pregnancy, and he regards the condition of the kidney as distinct from all others. He examined the kidneys of three fatal cases in which there was eclampsia associated with albuminuria, and found "the kidney large and pale, the cortex yellowish and dull. Microscopic examination showed a very extensive loading with fat, especially in the tubuli contorti; to some extent also in the glomeruli and in the Malpighian capsules. The fat was distinctly present in large drops." When the kidneys had remained for a time in spirit the fat in great part disappeared, and then the organs, on microscopic examination, appeared to be normal, and accordingly he infers that this fatty condition is not a degeneration, but an infiltration. His view is that such morbid conditions are due to a prolonged arterial anæmia. He thinks it also explains the rapid recovery that so frequently follows delivery. Further, he regards as causes the changed conditions of pressure which affect the abdomen or the effluent urinary organs.

3. In recent years a good deal of attention has been directed to the condition of the large glands of the body met with in ordinary pregnancy. The liver and kidneys have been found to exhibit a change in their structure, said to be analogous to cloudy swelling. This state of matters, when met with in the kidney, is probably the beginning of that condition described by Leyden, and when it occurs in the liver it is probably the first stage of acute yellow atrophy. The view is gaining ground that this parenchymatous degeneration of the liver in its early stage is the cause of the ordinary vomiting of pregnancy, while, if the changes in the liver become intensified, we have acute yellow atrophy, accompanied by the pernicious or uncontrollable vomiting of pregnancy. On the other hand, if the kidney is the organ that is specially affected we have puerperal eclampsia. There can be no doubt that we are only beginning to discover the important bearings that changes in these two organs—liver and kidney—may have on pregnancy.

Admitting, then, that there is some kidney lesion (temporary or permanent) in the majority of cases of eclampsia, I may be fairly asked, What is the relationship between the renal condition and the convulsions? Does the kidney affection cause the eclampsia, or does the eclampsia give rise to the abnormal state of the kidney, or, finally, is there some primary cause occasioning the convulsions, and at the same time giving rise to the kidney lesion? Dr. Braxton Hicks * has advanced the view that the convulsions may cause the albuminuria, but this theory has met with little support. We know that albumin often occurs before the onset of the fits, and it is worth noting that albumin is not often detected after severe epileptic seizures—an argument which tells with considerable force against Dr. Hicks. Thus, in Dr. Gowers's monograph on *Epilepsy*, he states that Dr. Beevor examined for him the urine, after forty-two attacks, in twenty-three patients, and in only one instance did he find a trace of albumin, and in this case, after another attack, it never could be found.[*]

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* *Obstetrical Transactions*, vol. viii.

Granting, however, that in a large number of cases of eclampsia there is evidence of renal disturbance, it must be admitted that the clinical history of such cases varies greatly; nor is this to be wondered at when one considers how much want of uniformity there is in the condition of that organ as observed after death by most competent pathologists. Further, we have all met with cases in which pregnancy has gone on to full term in patients the subjects of Bright's disease, and there is even a group of cases in which the fits have been met with where there has been no albumin detected at any time, and in which post mortem the kidneys have been found quite healthy. It is evident that when there are such differences in the clinical history of cases of eclampsia, and such varieties in the post-mortem records, no one explanation or cause will fit all the cases. As Winckel has said, there may be various poisons, or, at least, one poison arising in different ways in the body of the pregnant woman which may be the cause of the severe disease. It is not to be wondered at that in recent years the view that the convulsions and the albuminuria depend on a common cause—reflex irritation—has been put forward. Santos, from a study of fifty-three cases in the Buda-Pesth clinic, thinks that the uterine nerves are, owing to the enlargement and contraction and retraction of the uterus, kept in a state of irritation which reflexly acts on the renal and sympathetic nerves causing the albuminuria and the eclampsia. Pajot[†] believes that the convulsions are reflex, culminating in a cerebro-spinal center in close proximity to the albuminuria center. The following arguments have led him to adopt this view:

1. The certainty of the occurrence of eclampsia is not proportional to the intensity of the albuminuria.

2. Many women with a great deal of albumin do not have eclampsia, while others with only a trace of albumin die comatose.

3. Women have died from eclampsia and yet no albumin was discovered. Such cases, he admits, are rare. He thinks albuminuria is a predisposing but not an exciting cause.

Granted that in the majority of cases there is evidence of renal disturbance, it by no means follows that the existing convulsions are due to this state alone—that is, caused by certain substances which the kidney, owing to its abnormal condition, is unable to eliminate, circulating in the blood and poisoning the highly irritable nerve centers. There is another factor in all these cases the presence of which, as Gowers[‡] has pointed out, explains to some degree the absence of pronounced uræmic coma, and that is "the presence of a powerful cause of reflex irritation which may excite convulsions apart from any toxæmic influence, and when no other predisposition exists than an undue central excitability of the nervous system."

The Traube-Rosenstein theory, according to which the convulsions in puerperal eclampsia depend on cerebral anæmia due to œdema of the brain caused by the hypertrophied heart in pregnancy propelling, under increased tension, watery blood, is ingenious; but there are two obvious and fatal objections to its acceptance:

1. The records of necropsies show that there is no evidence of cerebral œdema in these cases.

2. Ordinary uræmic convulsions are most frequent just in those cases in which there is little or no general œdema.

What is the cause of the abnormal condition of the kidney so often present in cases of puerperal eclampsia? I do not think we are yet in a position to give a dogmatic answer to such a question.

There may be, as Leyden thinks, a form of renal disease peculiar to pregnancy, or, as has been stated, there may be an acute nephritis in pregnancy due to infective bacteria; or, as has been suggested by Stumpf,[#] under certain circumstances a nitrogenous substance of a toxæmic nature, it may be acetone or a closely allied body—is developed which in its elimination irritates the kidneys and so causes a nephritis.

Stumpf suggested this hypothesis, because in those patients with puerperal eclampsia whose breath had a peculiar ether-like odor he was able to detect acetone in the urine, and, taking a hint from this, he examined for sugar, which he found frequently present. I think this is a direction in which further research should be made.

In those cases in which there is no evidence of any renal disturbance—and such constitute a minority—the convulsions must be either simply epileptic, or reflex irritation alone, generally from the uterus, acting on a very excitable nervous system, is the cause of eclampsia.

In speaking of the irritation arising reflexly from the uterus, an idea has been put forward by German writers to which little attention is drawn in the ordinary English text-books, and that is that the fœtus may have a share in the causation of eclampsia. Winckel points out that Stumpf leaves it undecided whether the material—the cause of the disease in his opinion—is produced by an infectious agent introduced from without, or whether it may have been transmitted from the child to the mother. On this point Winckel states "the predisposition to eclampsia in twin and triplet pregnancy, its fatal effect on the child, the fact that dead children in *rigor mortis* have been extracted from eclamptic patients by Dohrn and Stumpf; and, finally, the fact to which I have drawn attention since 1865 with reference to the prognosis that with the death of the child during pregnancy the danger for the gravida is much lessened or entirely overcome, all point to the intimate relation which exists between the mother and the child in regard to the origin of eclampsia."

Having said so much, which I think demonstrates that our views as to the pathology of puerperal convulsions are still far from being settled, we turn to the more practical part—their treatment; and I hope to show that, in this respect, our opinions are becoming more settled and more unanimous than formerly. Before discussing the treatment two facts of the utmost importance must be kept in view: 1. The mortality is higher when the convulsions occur during pregnancy than when they set in during labor. The prognosis is most favorable when the eclampsia occurs for the first time after delivery. Again, the convulsions occurring early in labor are more fatal than when they set in at a later stage. Löhlein, out of eighty-three patients, in whom the convulsions happened before or during the first stage of labor, had a mortality of 40·5 per cent., while only one patient died out of fifteen in whom the convulsions set in after the completion of the first stage. 2. In one third of the cases the convulsions cease when the uterus is emptied.

Convulsions during Pregnancy.—Let us suppose we are suddenly called to a patient six or seven months pregnant, with convulsions, and in whom labor has not set in, what is our course of action? After taking precautions that the patient does not injure her tongue by passing a handkerchief across the mouth, and seeing that she is surrounded with plenty of pillows, I think chloroform is our sheet anchor. As quickly as possible she is to be brought under its influence, and at the same time thirty grains of chloral are to be given by enema. When the latter begins to act, the chloroform may be stopped, and the chloral repeated after each attack. In case the fits, notwithstanding this treatment, recur at shorter intervals and become more severe, then I am entirely of the opinion that labor should be induced. Under chloroform the bladder is emptied, the membranes are ruptured, and the os dilated with Barnes's bags or the fingers. This having been done, delivery is to be completed by turning or with forceps. Other remedies, such as pilocarpin, veratrum viride, amyl nitrite, nitroglycerin, venesection, and morphine, have at different times been advocated by various obstetricians, but in my experience the best results are obtained by the chloroform and chloral treatment, followed, if necessary, by induction of labor. I am glad to find that in the most recently published text-book of midwifery the author, Winckel,[*] says: "Whenever the patient becomes restless, and the approach of an attack is thereby recognized, or as soon as the first contractions commence, chloroform is to be given, and the inhalation continued until the attack disappears. The chloroform acts, therefore, as a preliminary calmative until the chloral can be given (1 to 2 g. = 15 to 30 grs.), which is at once to be administered after each attack *per enema*. This is repeated after each attack, and we are not afraid of giving as much as 12 g. (= 3 drachms) of the drug per day, and even more." His results are exceptionally good, for out of ninety-two patients he has only lost seven. In certain mild cases, if there is a wide interval between the fits, and if in this interval there is no coma, we may purge with croton oil, elaterium, or jalap, and give chloral with or without bromide of potassium; but, even in these cases, we must watch the patient closely and be ready to induce labor if necessary. Next to chloral, morphine given subcutaneously seems most useful.

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[*] *Epilepsy*, Gowers, p. 107.

[†] *Annual of the Universal Medical Sciences*, Sajous, 1889, vol. ii, I, 19.

[‡] *Diseases of the Nervous System*, Gowers, vol. ii, p. 716.

[#] Verhandlungen des ersten deutschen Gynekologen Congresses in München. *Archiv f. Gyn.*, Bd. xxviii, Heft 3; *Münchener med. Wochenschr.*, 1887, Nos. 35 and 36.

[*] *A Text-book of Obstetrics.* By Dr. F. Winckel, Professor of Gynæcology in the University of Munich. Translated under the supervision of Dr. J. Clifton Edgar. Pentland. 1890.

Convulsions during Labor.—In these cases our plan of treatment is to control the convulsions with chloroform and chloral, while we use every effort to hasten the delivery.

Convulsions after Delivery—In these cases the prognosis is much more favorable, and, in addition to treating the convulsions with anæsthetics such as chloral and bromide, we endeavor to keep the skin and bowels acting as much as possible.

Prophylaxis.—Let me add a word on the prophylactic treatment of eclampsia. In many cases of eclampsia the attack comes on quite suddenly, and we are summoned first when the patient is actually in a convulsion, but in others certain symptoms put us on our guard, and from their presence we are led to adopt a prophylactic treatment. Supposing that during pregnancy we find that there is much albumin, or that there are casts, or that the amount of solids passed is becoming less, we should see that the patient is warmly clothed, and that she avoids any exposure to cold. She should be kept on a milk diet, and nitrogenous food is to be avoided. The bowels should be made to act regularly and freely, either with pulv. jalapæ co., or cream of tartar, and in these cases there is no better remedy than the warm bath, which is a plan of treatment strongly recommended and used by German obstetricians. Winckel directs that every pregnant woman who has any notable albuminuria is to be given a hot bath at 100° every day, and after this she is to be wrapped in a blanket so as to cause diaphoresis, which usually continues two hours.

The method of employing the hot-water bath in the prophylactic treatment of puerperal convulsions is carried out in Vienna as follows. I quote from a paper of Dr. Earle read in the Gynæcological Society of Chicago, March 15, 1889.

"The patient is placed in a bath-tub filled with water at a temperature slightly above 99° F. The tub is then covered with a heavy blanket, leaving the face free, and the temperature of the water is gradually elevated to 110° or 112°. She remains in the bath thirty minutes. A towel wrung out of ice water and placed upon the head relieves any distressing cephalic sensations. While in the bath the patient drinks large quantities of water. Upon emerging from the bath she is covered with a warm sheet, and enveloped in an upper and lower layer of thick blankets, so that only the face is exposed. Within a very few minutes free perspiration is observed. The sweating is continued for two or three hours. According to the gravity of the case the hot-water bath may be repeated once daily for an indefinite period. The relief of all threatening symptoms under this simple plan of treatment alone is surprising. Sometimes the hot-water bath acts as an efficient excitant of uterine contractions and premature labor is induced."

If, notwithstanding all our treatment, the amount of urine is large and is steadily increasing, and if any cerebral symptoms appear, we at once administer chloral and bromide, and keep a most careful watch over the patient, so as to be ready, if convulsions set in and become severe, to induce labor.

Dr. Auvard, of Paris, said: Having made a special study of the question of eclampsia, and having published a pamphlet on the subject in 1888, I wish briefly to lay before you my views on the pathogenesis and treatment of this affection. Normally the elimination of organic waste products is effected (1) by the kidneys, (2) by the liver, (3) by the intestines, (4) by the lungs, and (5) by the skin. The kidneys and the liver are, however, the organs of elimination *par excellence*. When for any reason this elimination does not take place, the organism is poisoned by the accumulation of these waste products which occurs. This intoxication manifests itself most frequently toward the termination of pregnancy, giving rise to convulsions known as puerperal eclampsia. Eclampsia, then, is obviously the result of a "strike" on the part of the organs of elimination, a cessation of function which may be restricted to one of them—the kidneys or the liver, for example—hence the frequency of jaundice and albuminuria in association with this malady; or it may involve the entire apparatus of elimination. From this pathogenic theory we may at once deduce the therapeutic indication. The great thing is to restore the elimination of organic waste products, and there are three principal ways of attaining the object we have in view: purgation by means of jalap or other drastic purgative; diuresis by means of digitalis, milk, water, and the mineral diuretics; diaphoretics—such as the hypodermic injection of the hydrochlorate of pilocarpine or the hot-air bath. While we are waiting for these remedies—which take some time to act—to produce their effects, the convulsions may be allayed by anæsthetics (chloroform and chloral). In plethoric subjects one may have recourse to venesection, for the double purpose of securing the elimination of a certain quantity of toxic effete material and of favoring the re-establishment of the circulation normally slowed down by pregnancy. Lastly, delivery must be expedited by every possible means, because pregnancy itself, by the modifications which it causes and maintains, is the virtual cause of the eclampsia. To sum up: The pathogenic theory views eclampsia as the result of a "strike" on the part of the organs of elimination, giving rise to intoxication of the organism. The therapeusis of eclampsia comprises the threefold indication to favor elimination by means of purgatives, diuretics, and diaphoretics, and the threefold indication of sedation by means of anæsthetics, venesection, and by emptying the uterus.

Dr. Herbert A. Lawton said the occurrence in September, 1881, and again in May, 1882, of puerperal eclampsia in two healthy young women, the former in her third confinement at full term, the latter a strong, healthy, florid young woman who had just completed the seventh month of pregnancy, had set him thinking that the three ordinarily received causes of this convulsive disease—namely, renal disease with albuminuria, cerebral anæmia, and the circulation of carbonate of ammonia from decomposition of urea—would hardly explain these cases. Seeking for a reply to the questions, What is the probable cause of puerperal eclampsia in healthy women? and What is the immediate cause of the convulsions in other cases? he came to the conclusion that it might possibly be due to reflex irritation of the pneumogastric nerves. When one considered what an important part these nerves played during pregnancy, as evidenced by morning sickness, cardiac palpitation, dyspepsia, and dyspnœa in ordinary cases, going on to uncontrollable vomiting and asthma in more severe cases, he did not think it an extravagant theory to extend its influence to puerperal eclampsia. He had for the most part treated his cases with chloral and bromide of potash. Latterly, however, on the reflex irritation theory, he had decided to use nitroglycerin, a line of treatment advocated by Mr. Charles Watts Parkinson, of Wimborne. He understood the theory of its action to be by vascular dilatation, thus relieving renal as well as cerebral tension. He gave particulars of a case in which he had succeeded in averting puerperal convulsions in this manner. In a recent case, however, he had found nitroglycerin fail, but obtained a satisfactory termination by the subcutaneous injection of half a grain of morphine.

Dr. A. E. Aust Lawrence said he considered no absolutely healthy woman would have eclampsia, therefore the practitioner should take care that every parturient woman was brought to her labor in as perfect a state of health as possible, the medical attendant seeing her frequently, if necessary, for this purpose. At the time of the labor the convulsions should be treated by as early a delivery as possible. Before delivery chloroform should be used, chloral *per rectum*, bleeding or veratrum viride by hypodermic injection.

Dr. A. W. Edis indorsed the remarks of Dr. Byers and Dr. Aust Lawrence. He laid stress upon the importance of prophylaxis. When called to a patient actually in convulsions before or during labor the first thing to do was to administer chloroform to quiet the patient and give one time to consider what line of treatment was most advisable. Venesection was of great service in plethoric patients. Chloral *per* *rectum*, or morphine hypodermically, was very useful in allaying reflex and peripheral irritation. Labor should then be terminated as rapidly as consistent with safety to the patient.

Dr. J. G. Swayne gave a record of thirty-six cases of puerperal eclampsia, occurring during a private practice of nearly fifty years. In five he was the original attendant, in thirty-one the consultant. In twenty-four of these cases bleeding was used; in eighteen it was decidedly beneficial and the most efficacious remedy employed, and was speedily followed by great diminution in the amount of albumin. His experience led him to consider bleeding as the first in efficacy, anæsthesia by chloroform and chloral as second, and delivery as third. The most conclusive of his cases as to bleeding was one in which the rapid abstraction of thirty ounces of blood arrested the fits when all other remedies had failed.

Dr. Robert Bell, of Glasgow, said that a view of the pathology of puerperal eclampsia which he had long held not having been touched upon, he would like to remind the Section that during the period of pregnancy the blood-forming power of the economy was very much enhanced. The rule was, however, that this ceased when the physiological requirements were arrived at, but in exceptional cases the physiological boundary was passed, and then the realms of pathology were entered. The consequence was that not only were the kidneys congested, but general hyperæmia resulted, so that other organs were involved, and the epileptic center along with these. Naturally, the acme of the hydræmia, if he might use the expression, occurred about the termination of pregnancy, and this, taken together with the fact that the nervous apparatus of the woman was at the greatest point of tension when labor supervened, explained the fact that, as a rule, the fits commenced *pari passu*. This view of the pathology of puerperal eclampsia was fully borne out by the results of the treatment so generally advocated—namely, venesection, rapid delivery, the use of nitroglycerin, chloral, chloroform, etc. He had seen the most satisfactory results follow extensive vesication and copious draining of serum from the raw surfaces. He certainly did not agree with Dr. Aust Lawrence when he said that puerperal eclampsia did not, as a rule, occur in healthy women. His own experience was that the fits only occurred in the healthiest of women, but who were of a full-blooded habit.

Dr. Clement Godson called attention to the prevention of puerperal eclampsia in those cases in which there was a large amount of albumin and a great diminution in the amount of urea passed, to which attention had been called in the first instance by œdema of the extremities. It had been his practice to induce labor in such cases when, after treatment by purgatives and diuretics and such like, the œdema did not diminish and the amount of urea passed was not increased and the pregnancy had reached a period when the child was viable, and with the best results. He mentioned three cases of this kind which had come under his care during the last two years. In one it was decided after consultation not to induce labor; this patient when taken in labor became convulsed and rapidly comatose; the labor was hastened and completed by forceps, but she died immediately afterward. In the other two puerperal convulsions did not occur; and, although one of them, in whom the urine was solid with albumin, was advanced only six months, the child was born alive, and was now as well developed and healthy as an ordinary child of fourteen months.

Dr. William Douovan protested against the induction of premature labor in cases in which albumin was present in the urine. In many cases of albuminuria no convulsions occurred, and why should labor be forced on simply because albumin was present? They might assist delivery in all cases when labor had set in. When albumin was present, they could treat the case successfully by repeated small doses of chloral hydrate, with saline purgatives.

Dr. John Wallace, of Liverpool, referred to his paper read at Leeds in 1889 on rapid manual dilatation of the os uteri in puerperal eclampsia and forced delivery, and to the practice then followed of treating the convulsions and leaving the labor to Nature. Now, from this debate it was evident the views he then advocated were adopted. With regard to inducing labor at the sixth or seventh month, there was great difficulty in opening the os uteri. The principle to be kept in view was to note the specific gravity of the urine; a low specific gravity was more threatening than any amount of albumin; excretory purgation and diuretic action, with chloral and bromide to allay the irritable ganglionic reflex, were the prophylactic indications. When the fits came on, chloroform, given fully and as continuously as required, was indicated; chloral should be given in drachm doses by the rectum, and a powerful purgative whenever the patient could swallow. The longer the fits were allowed to go on, the more and more hopeless the case became.

Dr. Archibald D. Macdonald, of Liverpool, remarked on the necessity for more clearly defining the disease by determining the pathognomonic symptoms. Apoplexy, epilepsy, and hysteria were called puerperal eclampsia. He believed its origin to be in inflammation about the vaso-motor center, and that the renal excretion was not a certain factor in the ætiology. The treatment had been very varied. At Vienna a case occurred in which bleeding was practiced to begin with, followed by chloral, bromide, and the rest, and transfusion to end with. The patient happily recovered.

Dr. W. F. Cleveland believed there was a gradually decreasing elimination of urea, and this led to the condition of blood favorable to eclampsia. Another point was the natural condition of a patient's nervous system. Some women suffered from neuralgia as soon as they were pregnant, and it was therefore easy to understand how fits might occur in highly excitable women. He was of opinion that the convulsions were owing to reflex action, and this was the reason why induction of labor was sometimes so beneficial.

Dr. Heywood Smith wished to ask, with regard to the cases related by Dr. Godson, what was the condition of the pulse; whether there was not high arterial tension, and, if so, whether it would not be a good plan, instead of working by the roundabout way, when there was progressive albuminuria, to employ venesection at once—that is, before labor was expected—and so ward off the attack. He had seen several cases where, in plethoric women, venesection had been employed prior to ovariotomy with marked benefit.

Dr. Robert Harvey, of Bengal, said that at the Eden Hospital and in consultation at Calcutta he had seen a large number of cases of puerperal eclampsia, in most of which the symptoms had existed for a considerable time. He had found that, when treated early, chloral, bromide of potassium, and chloroform were frequently, though not always, sufficient; but that, as suggested by Dr. Macdonald, when treatment was delayed the great majority died, unless more energetic measures were taken. He had found bloodletting, in the form of a large number of leeches, most efficacious, and had one run of eight or nine recoveries, and now used it in every case.

Dr. Murdoch Cameron, of Glasgow, said he was of opinion that while the presence of albumin must be looked upon as a grave symptom, puerperal convulsions could not be reckoned on as a direct result, for in very many cases abundant albumin was met with without any complication with convulsions. For treatment he would rely upon chloroform and delivery. The only difficulty met with resulted from rigidity of the os, and to effect dilatation he would make use of subcutaneous injections of morphine.

Dr. C. Percival White called attention to two cases in which there was œdema but no albumin found in the urine with ordinary tests, but there was a precipitate thrown down with a saturated solution of magnesium sulphate, probably a globulin. The same precipitate was found in some cases of eclampsia after boiling had given no reaction. He did not suggest that there was any connection between the fits and this body.

Dr. Galabin, in reply, said that he agreed with most of what Dr. Byers had said both as to pathology and treatment. He thought the rarity of albuminuria after epilepsy a proof that that found in eclampsia could not be simply the result of the convulsions, but the convulsions would doubtless increase the circulatory embarrassment of the kidney. There was no constant condition of kidney found, but a recent acute nephritis was much commoner than a contracted granular or even a large white kidney. He thought that in chronic Bright's disease the nerve centers became accustomed to the poison, and so albuminuria might recur in successive pregnancies without recurrence of the convulsions. He believed in milk diet for prophylaxis when albuminuria was found, and thought it also useful to flush the kidneys by giving a large quantity of liquid. But he agreed also with Dr. Godson as to induction of labor if these modes of treatment failed. If the quantity of albumin was large and increasing and the proportion of urea much diminished, he believed there was grave risk of eclampsia, and that induction of labor would often avoid the risk. When convulsions had commenced he believed most in acceleration of labor, combined with anæsthetics. But he would rather exercise some patience than seriously lacerate the cervix by manual dilatation or forceps. When labor had not commenced he always punctured the membranes as the first step, and had sometimes found this relieve the convulsions even before labor came on. He agreed generally with Dr. Auvard's views of pathology and treatment, but did not estimate venesection so highly as he did. He had listened with great interest to Dr. Swayne's account of the effects of venesection. But he understood that the mortality of the cases mentioned by Dr. Swayne was higher than the twenty-per-cent. mortality attained in the Guy's Charity without any venesection. He thought the question could only finally be settled by comparing a long series of cases treated without any venesection with another treated by venesection for grave cases. He agreed with several speakers that pilocarpine was dangerous in some circumstances, but thought it also efficacious. He did not now use it before delivery, nor when there was any grave coma, for fear the patient might be choked. Perhaps large morphine injections were better; but he had frequently found the fits cease after the pilocarpine. As to hyperæmia of the medulla as a cause of the fits, the prevalent theory had lately been rather that there was anæmia of the nerve centers. He thought that there was no certain proof which theory was correct. He had met with a case resembling ordinary eclampsia in which cerebral hæmorrhage was found post mortem; but he thought that this was secondary to the kidney affection.

The Southern Surgical and Gynæcological Association will meet in Richmond on November 10th, 11th, and 12th, under the presidency of Dr. Louis S. McMurtry, of Louisville.

The preliminary programme gives the following partial list of papers to be read: The President's Annual Address; Remarks on Systemic Infection from Gonorrhœa, illustrated by Cases, by Dr. Bedford Brown, of Alexandria, Va.; The Rational Treatment of Peritonitis, based upon the Consideration of the Pathological Conditions Present, by Dr. W. D. Haggard, of Nashville; A Medico-legal Aspect to Pelvic Inflammation, by Dr. W. W. Potter, of Buffalo, N. Y.; Complications in Pelvic Surgery, and how to deal with them, by Dr. Joseph Price, of Philadelphia; Cholecystotomy—Report of Case—Fifty-two Gallstones and Ten Ounces of Pus removed—Success, by Dr. W. B. Rogers, of Memphis; Some of the Complications of Psoas Abscess, by Dr. J. McFadden Gaston, of Atlanta; Laparotomies performed in the Past Year, by Dr. Thomas Opie, of Baltimore; Imperforation of the Rectum, by Dr. G. B. Johnston, of Richmond; A Case of Induced Abortion for the Relief of the Nausea and Vomiting of Pregnancy, with Remarks, by Dr. Christopher Tompkins, of Richmond; The Principle of Drainage as applied to the Surgery of the Deep Urethra, by Dr. F. W. McRae, of Atlanta; The Neuroses of the Genito-urinary System in the Male, by Dr. Frank Lydston, of Chicago; Nephrectomy, with Report of Cases, by Dr. Edwin Ricketts, of Cincinnati; The Venomous Serpents of the United States, and the Treatment of Wounds inflicted by them, by Dr. Paul B. Barringer, of University of Virginia; A Report of Some Additional Cases of External Perineal Urethrotomy without a Guide, by Dr. J. Edwin Michael, of Baltimore; The Growth of Fibroid Tumors of the Uterus after the Menopause, by Dr. J. Taber Johnson, of Washington; The Part the Shoulders play in the Production of Laceration of the Perinæum, with Suggestions for its Prevention, by Dr. W. D. Haggard, of Nashville; The Pedicle in Hysterectomy—how formed; its Subsequent Behavior; its Final Condition, by Dr. I. S. Stone, of Washington; A Case of Pelvic Abscess, by Dr. John Brownrigg, of Columbus, Miss.; A Case of Cyst of the Mesentery, with Remarks, by Dr. J. A. Goggans, of Alexander City, Ala.; The Female Urethra, by Dr. K. P. Moore, of Macon, Ga.; The Medico-legal Aspect of Intestinal Surgery, by Dr. J. D. S. Davis, of Birmingham, Ala.; Albuminuria; its Relation to Surgical Operations, by Dr. J. W. Long, of Randleman, N. C.; Senile Gangrene, by Dr. Frank Prince, of Bessemer, Ala.; Hæmorrhage *versus* Shock, by Dr. W. L. Robinson, of Danville, Va.; The Treatment of Gallstones, with Report of Cases, by Dr. W. E. B. Davis, of Birmingham, Ala.; and papers by Dr. Hunter McGuire, of Richmond; Dr. Duncan Eve, of Nashville; Dr. A. V. L. Brokaw, of St. Louis; Dr. C. A. L. Reed, of Cincinnati; and Dr. W. F. Westmorcland, of Atlanta.

The Chinese Treatment of Hydrophobia.—A Chinese journal, referring to the dangers of hydrophobia, points out that the European doctors have not yet discovered an effective treatment for this disease. In order to determine whether the disease is really hydrophobia, the following method is recommended by a Chinese contemporary for this purpose: Get a gong or any large brass utensil and strike it before the patient. If he is suffering from hydrophobia he will at once show signs of madness; then fan him with a large palm-leaf fan, and he will crouch down as if in great fear. When the presence of the disease is thus ascertained, the next step that should be taken—a most important one—is to search the hair of the patient. There will certainly be found one hair of the color of vermilion, and rather stronger and coarser than ordinary hair. This particular hair should be entirely pulled out; not even the smallest part of the root must be left, otherwise the disease can not be cured. When this has been done, a prescription must be prepared, and the drugs used should be of such a nature as will expel the poison from the place in which it is.—*British Medical Journal.*

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, OCTOBER 24, 1891.

Original Communications.

ON THE TREATMENT OF SOME OLD UNREDUCED DISLOCATIONS OF THE ELBOW.*

By LEWIS A. STIMSON, M. D.,

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The possibility of the formation of irregular and abnormal masses of bone about the ends of bones that have long been dislocated has been known for many years, and examples of such formations at the elbow are to be found figured or described in the various atlases and text-books that have come down to us from the earlier writers. The interest that attached to them was rather languid, for they were looked upon as late changes, as epiphenomena of a condition which lay outside of and was not amenable to remedial measures. But the great extension that has been given of late years to operative procedures has led to the reopening of the question of the advisability of interference in such cases, and I desire briefly to call your attention to some results thus obtained, and more particularly to a source of error in the recognition of the exact condition in old dislocations of the elbow, an error that is likely to lead to a refusal to interfere when, if the condition was correctly apprehended, it would be evident that interference would be beneficial. This error consists in mistaking certain outgrowths of bone which appear promptly after dislocation for displaced fragments or exuberant callus after fracture. The surgeon, supposing the lower end of the humerus to be irremediably deformed, very properly refrains from an attempt to make what he deems an impossible reduction, whereas, in fact, the articular surfaces have undergone no change in shape, and, so far as they are concerned, a restoration of the normal relations is possible. Another and equally important deduction is that reduction of the dislocation and restoration of function are absolutely impossible, except by an open arthrotomy with removal of the bony outgrowths. Upon these two points—the character of the bony outgrowths and the results of reduction by open arthrotomy—I desire to report my personal experience of eight cases, six of which underwent operation.

The cases are in brief as follows, the details of symptoms and treatment being reserved for a subsequent general description:

Case I.—Maggie F., aged eleven years, admitted to Bellevue Hospital in April, 1886, with a backward dislocation of the right elbow that had existed for five months. The joint was fixed at an angle of 150°. Operation by an external incision, followed by division of the olecranon. Primary union. Dislocation recurred unobserved under the plaster-of-Paris dressing, and in June the end of the humerus was excised. This case was reported in detail in a paper read before the New York Surgical Society in March, 1887, and published in the *New York Medical Journal* for April 2, 1887.

Case II.—John G., aged twelve years, a patient of Dr. W. H. Sherman, Yonkers, N. Y. On February 28, 1888, he received a backward dislocation of the right elbow which remained without treatment until he came under Dr. Sherman's care, April 2, 1888. The elbow was almost completely extended and fixed. I saw him April 5th, and advised operation by two lateral incisions, which was immediately done. Primary union. The patient eloped April 30th, having then flexion and extension through an arc of 45°; a year later he was reported as having a movable and useful arm. (*Note.*—He now [in October, 1891] has complete flexion and rotation, with extension to 140°.)

Case III.—Annie W., aged eleven years, admitted to the New York Hospital, August 11, 1888, with a dislocation of the right elbow backward and outward, received three weeks previously. The joint was nearly immovable at 145°; the internal epicondyle could not be felt. After failure to reduce under ether, operation by two lateral incisions; epicondyle found beneath and behind the trochlea; the mass capping the head of the radius was only partly ossified. Primary union, except for a sinus leading down to side of external condyle in track of drainage-tube. On November 5th flexion was almost normal; extension to 165°; rotation complete.

Case IV.—John T., aged thirty-four, was brought to me by Dr. Jennings, August 17, 1890; two months previously he had received an injury of the right elbow in a fall from a wagon, which was supposed to be a fracture, and was treated by immobilization in full extension for four weeks, after which a forcible attempt was made to flex the joint, but without success. Examination showed a backward dislocation; elbow fixed in full extension; marked lateral mobility. I sent him to the New York Hospital, and operated, August 19th, by two lateral incisions. Primary union, except at a point over the outer condyle. Discharged October 30th, with flexion within a right angle and almost complete extension, as shown in these photographs.

Case V.—John G., aged twelve years, admitted to the New York Hospital, October 9, 1890, with a backward dislocation that had existed for two months. Joint fixed at about 135°. Operation, October 13th, by two lateral incisions; primary union. Patient eloped November 4th, the range of motion being then 45°.

Case VI.—Samuel D., aged twenty-five years, was sent to me by Dr. E. L. Keyes, November, 1890. Early in July, 1890, he had injured his left elbow in a fall; the injury was supposed to be a fracture and was treated in a hinged splint, passive motion being made daily; six weeks later the range of motion was forcibly increased under ether, but the joint promptly stiffened again. The accompanying photographs show the condition at the time he consulted me; dislocation backward; the joint almost absolutely fixed at about 100°; rotation of the forearm perfect. I sent him to the New York Hospital and operated December 2, 1890, by two lateral incisions. The cicatricial tissue at the back of the joint was exceptionally abundant (undoubtedly in consequence of the passive motion and the forcible breaking up under ether in the seventh week), and the necessary dissection was extensive; indeed, before the bones could be restored to place the flexor and extensor muscles of the wrist and hand had to be almost completely separated from the humerus. In addition to the usual mass on the back of the external condyle, there was a smaller one on the posterior inner edge of the trochlea. The healing of the wound was delayed by a small superficial area of suppuration on the outer side, but it was complete at the end of a month. Complete motor paralysis of the fingers, due probably to the pressure of the elastic tourniquet during the operation, was observed on the second day; slight return of power was noticed December 26th, and restoration was complete soon afterward. He passed from under observation February 15th; his condition at that time is shown in the accompanying photographs; flexion and extension through an arc of 45°, more than half of which is within a right angle; rotation complete. The range was increasing.

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* Read before the American Surgical Association at its twelfth annual meeting.

Case VII.—A man, twenty-two years old, was brought to me by Dr. David D. Jennings, March 20, 1891, with a backward dislocation of the left elbow that had existed ten weeks. The joint was fixed at an angle of 110°; an overgrowth of bone above the head of the radius, such as was found in the preceding cases and will be subsequently described, could be distinctly felt, and there was marked thickening of the internal epicondyle. The outlines of the trochlea and capitellum could be clearly made out in the flexure and on the inner side of the elbow. Operation was refused.

Case VIII.—John N., nine years old, was sent to my clinic at the University Medical College by Dr. F. N. Burke, of Brooklyn, in January, 1891, for advice concerning an injury of the elbow received about three months previously. Examination showed the injury to have been a fracture of the internal condyle with dislocation backward and upward of the fragment and both bones of the forearm; the capitellum could be distinctly recognized below and in front of the head of the radius. I advised against an operation. I include the case in this list because of the formation of a large nodule of bone at the back of the external condyle, capping the dislocated radius as in the other cases.

Five of the patients were between nine and twelve years old; the others were twenty-two, twenty-five, and thirty-four years old. In all but one case (excluding Case VIII) the dislocation was backward; in one (Case III) it was backward and outward, the coronoid process lying close under and behind the capitellum. The dislocation had lasted in one case only three weeks; in another, five weeks and a half; in three, two months; in two, five months; in one, about three months. In all, flexion and extension were entirely or almost entirely lost; and in most of them the limb was fixed at an angle of about 145°. Rotation of the forearm was preserved in all but one.

The feature of special interest is the prominent mass of bone seen and felt above the displaced head of the radius and continuous with the back of the external condyle. In all the cases this mass was broadly attached to the back of the condyle, and its free end extended down so far as completely, or almost completely, to cover the upper surface of the radius and form a new articulation with it. In Case III, in which only three weeks had elapsed since the injury, this mass was only partly ossified; in all the others it was of solid bone. The external lateral ligament was attached to its outer border. It is this mass that is responsible for the frequent failure to recognize the exact nature of the condition, for its shape and relations to the head of the radius suggest that it is the fractured and displaced capitellum. That it is a new growth is fully proved by the fact, demonstrated in all the operations, that the lower articular end of the humerus was complete in all its parts and unchanged in form or in cartilaginous covering, and also by the observation in Case III, just alluded to, that at the time of the operation the mass was still in process of ossification. The error in diagnosis is further favored by the difficulty of recognizing the capitellum under the overlying mass of the extensor muscles of the hand, and by the massive projection of the internal condyle in front and on the inner side, the bulk of which seems far too great for that of the normal trochlea, and the recognition of which as such is hindered by the frequent absence or masking of its epicondyle (which is often broken off), and the difficulty of tracing its outlines and surfaces through the overlying muscles. Furthermore, the forearm is often adducted upon the arm, and, as its adduction is masked by outward rotation of the humerus, the projecting condyle seems to occupy an abnormal position with reference to the humerus, and thus creates another difficulty in diagnosis.

The explanation of the mode of formation of this mass on the back of the external condyle which I suggested in 1887 in the paper above quoted and repeated in 1888 in my *Treatise on Dislocations*—namely, that it was produced by the stripped-up periosteum—has been confirmed, I think, by the subsequent observations and by experiment. Case III is of especial interest in respect to this point, for in it the mass was examined at an early period in its growth and was but partly ossified, resembling in structure that portion of callus which is formed by the detached periosteum after fracture. Experiment upon the cadaver has shown that in some cases of backward dislocation the external lateral ligament is not ruptured, but is detached from the humerus and remains continuous with the periosteum, which is stripped from the back of the condyle and caps the head of the radius exactly as this bony mass does. I am convinced that in various specimens of old dislocation described and pictured by some of the older writers similar new growths have been found and erroneously supposed to be the original capitellum. One of Sir Astley Cooper's cases (*Fractures and Dislocations*, Am. ed., 1844, p. 390), which seems clearly to be of this kind, was offered by him as a specimen of isolated dislocation of the ulna backward, and has done duty for many years as the first recorded example of that rare injury, of which only two other alleged specimens have been reported.*

It may be mentioned that masses of new bone have been observed at other points about the joint in cases in which the dislocation had lasted for many years—for example, a broad high plate of bone on the anterior aspect continuous with the coronoid process and apparently produced by ossification of the anterior portion of the capsule. These are probably of much later production and are certainly due to other agencies; they do not enter into the questions that now occupy us.

The *symptoms* of the condition under consideration are as follows: The history of an injury; almost complete fixation of the joint, usually at an angle of about 140°; preservation of rotation of the forearm. On the outer side the head of the radius can be readily recognized lying against and rotating upon a mass of bone that is continuous with the shaft of the humerus and more or less closely resembles the normally palpable portion of the external condyle. The relations of the olecranon to this mass and to the head of the radius are essentially those which it normally bears to the latter and to the external condyle; but if all swelling has subsided, and especially if the joint is flexed nearly to a right angle, the olecranon will be clearly seen to stand too far behind the humerus, as shown in the photograph of Case VI. On the inner side the conditions are evidently abnormal; the internal epicondyle is often unrecognizable, either because it has been broken off and displaced or because it is masked by new connective tissue. The finger recognizes on the inner side and in front, well below the apex of the olecranon, a large mass of bone with a broad, flat surface directed inward and forward, and a well-defined curved anterior and inferior border. This surface is the inner surface of the internal condyle, with or without its epicondyle, and the curved border is the inner edge of the trochlea. If the patient is not too fat or too muscular the finger can recognize in front the notch of the trochlea, and possibly the capitellum farther to the outer side and below and in front of the head of the radius.

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* Through the courtesy of Dr. Shattock, the pathologist of St. Thomas's Hospital, London, I was permitted to examine this specimen last July. It bears the black label 700, and white label 260; the new growth of bone capping the head of the radius is easily to be recognized as such. In the Musée Dupuytren in Paris, specimen 734 A shows a similar nodule above the head of the radius.

The only injury from which it should be difficult to distinguish this would be, I imagine, fracture of the external condyle with dislocation of the fragment and both bones backward and upward; the difficulty might arise through inability to determine the presence of the capitellum in its normal position or its absence therefrom.

The method of operation in all the cases but the first was to expose the region by two lateral incisions. The first incision was made on the outer side, beginning well up on the supinator ridge and passing downward across the head of the radius and then for an inch or two along the interval between the radius and ulna; the new growth of bone is exposed at the upper part of the incision, denuded, and cut away with a chisel; the outer aspect of the external condyle is freed by division of its fibrous attachments to the radius and ulna, the periosteum not being detached until the articular surface of the capitellum is exposed. Drawing apart the sides of the upper portion of the wound, the olecranon is exposed, and the fibrous mass, which more or less completely fills its sigmoid cavity and binds it to the back of the humerus, is cut away. The second incision is made on the inner side; it is about four inches long, curved (the concavity forward), and passes close behind the epicondyle (or its site if it has been broken off); after division of the fascia and recognition of the ulnar nerve, the latter is drawn aside in the outer flap of the wound and the fibrous bands connecting the condyle and olecranon are divided. If the epicondyle has been broken off, displaced upward, and reunited with the humerus at a higher level, it should be cut free and turned back with the attached internal lateral ligament, instead of dividing the latter. This division of the attachments is carried downward until the articular surface of the trochlea is exposed. The dislocation can then be easily reduced. It is important that the dissection should not be subperiosteal, for otherwise the subsequent nutrition of the cartilage of incrustation may be impaired. If the interval since the injury has been long, the flexor muscles arising from the internal condyle may have become permanently shortened, and it will then be necessary to separate them more or less extensively from the humerus before reduction can be made. The wound is then closed (with or without drainage, according to the preferences of the operator and the exactness of his aseptic technique), and the dressing applied with the elbow flexed nearly to a right angle.

After the removal of the dressing I have supported the arm in a sling, and have encouraged the patient to use the hand, and ultimately the elbow, in acts that required the exercise of but little force. Passive motion has not been employed.

In the first case I employed transverse division of the olecranon instead of the second incision on the inner side, according to the method known as "osteoplastic excision of the elbow"; I now consider it very inferior to the method by two lateral incisions, for reasons that I have given elsewhere.

A U-shaped incision, the central portion of which crosses and divides the triceps close above the olecranon, has been successfully employed in one or two cases that have been recently reported. The two arms of the U are essentially the same as the two lateral incisions I have employed, and the central portion appears to me to be an unnecessary addition, with no advantage that adequately compensates for the division of the triceps.

With the exception of the first case, in which the operative method was faulty and the dislocation recurred unrecognized under the dressing, the results have been satisfactory to this extent: the bones have been permanently restored to their places and the deformity corrected, and more or less freedom of motion has been regained; in all, rotation of the forearm was preserved; in three the range of flexion and extension was from well within a right angle to nearly complete extension; in one it was about 45° at the end of two months and a half and was increasing; in one it was about the same at the end of three or four weeks, when the patient was lost sight of. Such results are not only an improvement upon the condition that existed prior to the operation, but they are also better than those obtained by such alternative measures as fracture of the olecranon or excision of the joint. Reduction without a cutting operation does not enter into the comparison, for it is evident, from consideration of the existing conditions, that it is impracticable.

THE SURGICAL TREATMENT OF GRANULATED LIDS,

WITH REPORTS OF CASES TREATED BY "GRATTAGE."*

By JOHN E. WEEKS, M. D.,
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Of the diseases of the eye that come under the observation of medical men, whether in private, in dispensary, or in hospital practice, the one that, by the common methods of treatment, gives the least satisfaction, is most annoying to the patient, and is most productive of impairment of vision, is trachoma—the disease commonly known as granulated lids. If the case is a severe one, the treatment of granulated lids by the application of the sulphate of copper or alum crystal, the use of chlorine water, dioxide of hydrogen, glycerin and tannin, solutions of the sulphate of zinc and the nitrate of silver, the rubbing in of boric-acid powder, iodoform, or calomel, or external applications of any kind, improvement of the general health, change of atmosphere, etc., means a treatment extending over a period of time varying from a few months to many years. In jequirity we have a remedy which, if used in infusion, as employed by many oculists, or in powder, as employed by Panas, Wecker, and some others, will materially shorten the duration of the disease in appropriate cases. The inflammatory condition induced, however, is very annoying to the patient, and is not without danger, sloughing of the cornea sometimes occurring (see *Arch. of Oph.*, vol. i, 1884). This feature has made the remedy extremely unpopular with conservative oculists. These are the facts regarding the non-operative treatment of trachoma. With the operative treatment as recently developed, the prospect is much more encouraging. The various methods afford us means, I believe, which enable us to stop the progress of this tedious and dangerous disease and to promote a cure in the great majority of cases, without danger to vision and without deformity of the lids. We may conveniently divide trachoma into three stages, as follows:

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* Read before the Medical Society of the County of New York, September 28, 1891.

First Stage.—That period during the formation of the granules or follicles in which there is more or less secretion, the granules are discrete, the conjunctiva and lids swollen, and the condition is one of hypertrophy. No evidence of cicatricial contraction is present; no pannus; vision good.

Second Stage.—The granules have coalesced more or less, and are of denser consistency. Vascular pannus with superficial keratitis is often present; there is evidence of cicatricial tissue in the conjunctiva; the tarsus is somewhat shrunken and thickened, and the palpebral fissure is narrow; vision impaired. The milder degrees of entropium are met with in this stage.

Third Stage.—The trachomatous tissue has given place almost, if not quite entirely, to cicatricial tissue. Almost total obliteration of the conjunctival sacs has occurred. There is often entropium; sometimes complete xerosis; pannus, vascular or non-vascular, with great impairment of vision or total blindness.

The surgical treatment of trachoma, as discussed in this paper, is applicable to the first and second stages almost exclusively. It is not the design of the author to speak of the various operations for alleviating the conditions met with in the third stage.

The immediate effects theoretically accomplished by the operative methods at present employed are as follows:

1. Partial removal by excision.
2. Partial removal by expression.
3. Destruction of trachoma tissue by scarification and by the use of electrolysis.
4. Removal of trachoma tissue by brushing with a stiff bristle brush.
5. Destruction of the trachoma granules by use of the galvano-cautery.
6. Partial removal by scarification and rubbing with a brush, with the introduction of a strong germicide.

The *first* method is largely employed by Galezowsky, who makes it fit the majority of cases of trachoma. It is also advised by Michel in selected cases. It is performed as follows (anæsthesia is advisable, but is often omitted): The patient is placed in the recumbent position, the lid is everted, and the male blade of Galezowsky's double-pointed, toothed, fixation forceps is carried to the bottom of the *cul-de-sac*. By pressure outward, the folds of the fornix are exposed and are fixed by closing the forceps. This procedure gives complete control of the fornix conjunctivæ where the trachoma granules are usually largest and most profuse. All of the fornix folds are then cut out with the scissors.

In cases where the granulations extend well over the tarsus and encroach on the ocular conjunctiva the upper part of the tarsal conjunctiva and a portion of the ocular conjunctiva are removed (Jacobson, *Beiträge z. Path. d. Auges*, Leipzig, Engelmann). This procedure is repeated in the upper and lower lids if trachomatous tissue is present in both. After washing with a weak antiseptic solution, the eyes are bandaged and the patient is taken to the ward. Some surgeons employ sutures for closing the conjunctival wound; some do not. The bandage is removed in a day or two, mild antiseptic measures are followed for a short time, and the patient is discharged. Galezowsky claims excellent results from this method, and exhibits patients at his clinic who have been much benefited by it. Excision of the fornix conjunctivæ, however, leaves much to be desired in the surgical treatment of trachoma.

The objections to the method are: 1. It removes but a portion of the diseased tissue. 2. It causes loss by actual removal of a part of the conjunctiva, which the patient who has suffered long from trachoma can ill afford. 3. It sometimes produces permanent ptosis, making it possible to elevate the lids only when the eye is rotated upward. At present the advocates of this method are few in number. It has no advantages over other methods, and has the disadvantages mentioned. It may be remarked that the hæmorrhage attending the operation is considerable.

Second. Partial Removal by Expression.—This method is now quite generally employed. It is applicable to what I have termed the first stage of trachoma. It was the custom some years ago to express the contents of the trachoma granules singly, using a small forceps, and treating only part of the granules at each sitting. A number of sittings were required to promote a cure. During the intervals the ordinary topical applications were made. Cocaine was the anæsthetic employed. I have found this method quite satisfactory in many cases in private practice. Expression in trachoma, as used at present, especially in marked cases, is completed in one sitting. To facilitate this, special expression forceps have been devised. That by Prince, which was exhibited at the meeting of the Illinois State Medical Society, May, 1889, consists of an ordinary spring forceps handle, with circular fenestrated tips or blades made by Tiemann. Shortly after this Dr. Henry D. Noyes devised a forceps especially for this purpose. This consists of the ordinary forceps handle, armed at the free ends with grooved blades, concave on the opposing surfaces, which are placed at right angles with the handle. These blades are about three fifths of an inch long and an eighth to three sixteenths of an inch wide. The opposing edges are smooth. The forceps is excellently adapted to the purpose intended. Dr. Herman Knapp has recently devised a forceps for this purpose in which the blades are supplied with a small roller; by this device a rolling motion over the conjunctival surface is obtained instead of a scraping motion, the supposed advantage being that not so much surface epithelium is removed during the process of expression, and that danger of tearing the conjunctiva is obviated.

Dr. Gruening has also devised a forceps having spoon-shaped blades. These blades are about half an inch in diameter, one blade being concave on its opposing surface, the other convex along its lower margin, the convexity being composed of soft metal.

The operation is as follows: The patient is placed on the operating-table or chair, and is etherized. (Cocaine may be employed, but is not sufficient to control the pain.) The lids are then everted in turn, the loose rolls of conjunctiva seized with the forceps and stripped of the contents of the trachoma granules by a slow motion. Two forceps are usually employed, and when the conjunctiva is about to escape from the first one it is seized with the second. The stripping process is continued until all trachoma granules have disappeared. The conjunctival surface is then washed with a mild antiseptic solution. The eyes are left free or a bandage is applied for a day or two. The sulphate-of-copper crystal is well rubbed in by some operators (Gruening) immediately after the operation. The after-treatment consists in the use of antiseptic washes and the application of astringent solutions—the nitrate of silver, alum, zinc, etc.—as required. The conjunctiva remains red for some time, but this gradually subsides and recovery, with but little remaining trachomatous tissue and little shrinking, occurs. The epithelial layer over the trachoma granules is scarified by some operators to facilitate the expression of their contents; but this is not necessary.

This method in selected cases is very excellent in the results produced. The efficacy of the treatment would be more marked, however, if the subsequent antiseptic treatment was more vigorous. If this procedure was applicable to all cases of trachona it would leave nothing to be desired; it is, however, only suited to the early cases, and is useless in the older ones where the granules have coalesced and form hard masses on the upper margin of the tarsus, and where some atrophy of the conjunctiva is already apparent.

Third. Destruction of Trachomatous Tissue by the Use of Electrolysis.—This method was introduced by G. Lindsay Johnson, of London (*Arch. of Oph.*, xix, p. 264), and is, so far as I am aware, used by him exclusively. He divides the process into three stages, as follows: First stage: After anæsthetizing the patient the lid, upper or lower, is everted over a horn spatula and stretched forcibly over the spatula by means of a double hook inserted into the margin of the lid. The hook is vulcanized, and consequently a non-conductor of electricity. The conjunctiva is then scarified with a three-bladed "sillonneur" graduated to cut one to four millimetres deep, according to the thickness of the conjunctiva in individual cases. The incisions are made parallel to the free margin of the lid, close together and parallel to each other. They are made over the tarsal and fornix conjunctivæ. Second stage: After the bleeding has almost entirely ceased, the incisions are traversed by a double-bladed platinum electrode. The blades are flat and thin and placed far enough apart to nicely traverse the grooves made by the scarifier. One blade is connected with the positive and one with the negative pole of a battery composed of about six of Stöhrer's carbon and zinc cells. As the electrode traverses the grooves a faintly yellow, frothy mass exudes as a result of the electrolytic action. Third stage: Calomel is now dusted over the surface and it is smeared with an ointment composed of vaseline and hydronaphthol, 1 to 800; the eyes are bandaged. The after-treatment is much as in the operation by squeezing. Johnson reports excellent results from this procedure, the resulting cicatricial formation being slight and not enough to produce friction pannus or ulcers of the cornea. Recovery occurs in about three weeks.

The operation commends itself to us for the following reasons: It is applicable to the first and second stages of trachoma. It combines free access to the trachomatous tissue by scarification with vigorous and quite thorough antisepsis. It is subject to the following objections: First, it does not remove the trachomatous tissue as we could wish. Second, it necessitates the employment of rather expensive apparatus and of apparatus that may readily get out of order.

Fourth. Removal by scrubbing out the Trachoma Granules with a Stiff Bristle Brush.—This method is advocated by Manolescu, of Bucharest, who employs it in cases that are in the second stage of trachoma. It has also been employed with good results by Keyser, of Philadelphia (*Oph. Record*, 1891, p. 51). The operation is performed by anæsthetizing the patient, everting the lids, and brushing out the trachoma masses with a tooth-brush made very firm and stiff by cutting the bristles down to about one fourth of an inch. The brush is also employed by Arnaut (*Annal. d'oculistique*, January and February, 1889)—not, however, for the purpose of brushing out the granules, but for the purpose of introducing a strong solution of the bichloride of mercury (1 to 120 or 1 to 100) into them. Employed principally in the earlier stages of trachoma, Arnaut reports ten cases, all of which were improved and some were cured.

Fifth. Destruction of the Trachoma Granules by Use of the Galvano-cautery.—This method is advocated by Reich (*Klin. Monatsbl. f. Augenheil.*, p. 56, 1889), who uses a pointed electrode. He penetrates and destroys each follicle separately, and prefers to accomplish the cure by repeated sittings, touching but a few follicles at a sitting. The method is not in general use.

The sharp curette is used by some oculists, but has a very limited application.

Sixth. Partial Removal by Scarifying and Rubbing with a Brush, and the Introduction of a Strong Germicide.—This method of treatment has reached its fullest development in Abadie's clinic, Paris, through the efforts of M. le Docteur Davier, and is extensively practiced by Panas, De Wecker, and others. Its introduction is recent. I am indebted to the kindness of my friend Dr. W. B. Marple, who enjoyed an opportunity of witnessing the operation in Abadie's clinic and of watching the results of treatment, for a description of the operation. My thanks are also due him for his kind assistance at the operating-table. The operation is performed as follows: The patient is anæsthetized. (Cocaine is sometimes employed, but it does not control the pain and is not advised.) If the palpebral fissure is narrow or the lids have been thickened and curved by the progress of the disease, a canthotomy or canthoplasty is performed. The margin of the lid is then grasped with a catch dressing forceps made for the purpose, the axes of the blades being held parallel to the margin of the lid. One blade of the forceps is placed on the conjunctival surface, the other on the surface of the integument, both being at the margin of the lid. The lid is now everted, the fornix conjunctivæ fully exposed to view and put on the stretch by rolling the lid over the blades of the forceps. All of the diseased portion of the conjunctiva is now scarified by making parallel incisions placed close together and parallel to the margin of the lid. These incisions are united by a few transverse incisions. The depth of the incision depends upon the depth of the trachomatous tissue, usually passing almost through it. The back of the scalpel is sometimes run over the cut surface to express any trachomatous tissue that may be easily dislodged. The exposed surface is then thoroughly scrubbed with a tooth-brush which carries a solution of the bichloride of mercury (1 to 500). All of the affected surfaces are in like manner exposed, scarified, and scrubbed. The lids are then freed from clot and the eyes are bandaged with an antiseptic dressing. After twenty-four hours the bandage is removed and the conjunctival surface is rubbed with a pledget of absorbent cotton which has been dipped in a solution of sublimate (1 to 500). The rubbing is repeated each day after the operation for two weeks, except in cases where there is considerable reaction, when the applications are made less frequently. Quite intense œdema of the lids may follow the operation. Usually, however, the reaction is slight, the discomfort to the patient very little, and the improvement rapid and marked.

Until within a few months my efforts in the surgical treatment of trachoma have been confined to expression, using small forceps and operating on but a small area at each sitting, using cocaine as an anæsthetic. In the intervals between the sittings germicidal and aseptic washes were employed. In selected cases the results were very satisfactory, but, like the operation for complete expression at one sitting, with the forceps of Noyes, Knapp, or Gruening, it could only be applied successfully to the more recent cases of trachoma where the conjunctiva was still redundant, the granules more or less discrete, and where cicatricial tissue had not developed to any great extent. In the relatively large number of cases of trachoma which have passed into the second stage (as described above) this method by expression can not give very satisfactory results. It is for the relief of these cases that "grattage" appears to be the operation best adapted. The method commends itself to those who believe that trachoma is a germ disease (and few oppose this view to-day), as it opens up the way to the infected tissue by scarification, and the germicide is introduced in sufficient strength to destroy the germ by means of the brush. The cause of the disease removed, the tissues return to an approximately normal condition.

The author has operated on twenty-one patients for trachoma by this method, either pure or more or less modified. The following histories embrace the most important cases that came under his care in his service at the New York Eye and Ear Infirmary, Thirteenth Street and Second Avenue:

CASE I.—J. McN., aged twenty-five years, was admitted to the hospital July 10, 1891. The patient was led in, his vision being so poor that he could not find his way alone. Trachoma of four or five years' duration. The conjunctival surface was found to be reduced in area. A mass of translucent, nodular trachomatous tissue of dense consistency occupied the tarsal and fornix conjunctivæ of the upper lids. The lower lids were affected, but to a less degree. There was marked vascular pannus. The patient was treated for a month by daily, light applications of the crystal of the sulphate of copper. The eyes were also bathed from time to time with a solution of boric acid. But little improvement followed.

July 28th.—The operation of "grattage" under ether was performed, together with canthotomy.

29th.—Reaction slight. The application of bichloride (1 to 500) gave no pain. Patient feels well. The applications were continued until the patient left the hospital, which was on August 8th. At this time the lids, which before had been thick and stiff, were thin and more movable. V. = $\frac{20}{200}$.

August 15th.—Conjunctivæ smooth. V. R. E. = $\frac{20}{100}$; V. L. E. = $\frac{10}{200}$. No photophobia.

27th.—Patient has been working as longshoreman in a very dusty atmosphere. The lids are congested. Advised rest and the use of a boric-acid solution.

29th.—Eyes feel well. Conjunctivæ smooth.

CASE II.—Thomas F., aged twelve years. Trachoma for two years (patient's statement). At present there is some secretion. The tarsal and fornix conjunctivæ in both eyelids are thickly studded with trachoma granules. The lids are thick but show no evidence of cicatricial contraction. Vascular pannus of a mild degree is present. Marked photophobia. V. = $\frac{20}{200}$. On July 30, 1891, the patient was admitted to the hospital and was operated on by "grattage" under ether.

July 31st.—Bandage removed. Reaction slight. Applications of the bichloride (1 to 500) caused no pain. The applications of the bichloride solution (1 to 500) were made every day and the eyes were bathed occasionally with a solution of boric acid until August 6th, when the patient was discharged. At this time the photophobia had disappeared and the lids were rapidly assuming their natural thickness. V. = $\frac{20}{100}$.

August 13th.—There is a very little muco-purulent discharge, for which a one-per-cent. solution of the nitrate of silver was applied. Eyes comfortable.

29th.—Conjunctivæ smooth, pale, and a little shrunken, from cicatricial contraction. Corneæ clear. No discharge. No discomfort.

CASE III.—Thomas McN., aged thirteen years. Trachoma for three or four years. Patient admitted July 30, 1891. He was led into the hospital, as he could not see to make his way alone. The lids were very thick. Palpebral conjunctivæ densely studded with trachoma granules which had coalesced over the upper margins of the tarsi of the upper lids. Dense vascular pannus with superficial keratitis. Some atrophy of the conjunctiva, with narrow palpebral fissures. V. = fingers at a few feet. Intense photophobia. Muco-purulent discharge in small quantity. Operation under ether by "grattage," with a free canthotomy.

July 31st.—Marked œdema of the lids, for which cold applications were ordered. The œdema subsided in a few days. The application of the bichloride solution (1 to 500) with an occasional bath with a saturated solution of boric acid was kept up, and rapid improvement followed.

August 13th.—There is profuse lacrymation of the left eye and newly formed superficial keratitis. The conjunctiva of the upper lid is found to be traversed by three or four cicatricial bands which have an oblique course. The tissue between these bands bulges forward and has the appearance of granulation tissue. (It may be remarked that in this case the transverse incisions at the time of operation were more numerous than in previous operations.)

20th.—The photophobia still continued, in consequence of which the lids were kept forcibly closed. The pannus and keratitis had apparently increased. The incision for canthotomy had closed, and it was thought necessary to perform canthoplasty to remove the pressure that the cornea was constantly subjected to. This was done and a number of prominent masses of tissue were removed. The larger vessels passing into the cornea of the left eye were divided at the limbus.

21st.—There is some œdema of the lids, for which cold applications are being made. No pain.

September 2d.—The improvement since August 20th has been continuous. At present the conjunctivæ are smooth, but still a little thickened. Very little photophobia. Corneæ nearly clear.

Case IV.—Thomas C., aged twenty-one years. Has had trachoma four years. The conjunctiva was shrunken, the lids and tarsi thickened, and their curvatures increased. The upper portion of the tarsal conjunctiva and the fornix conjunctivæ were the seat of a dense, almost uniform, mass of trachomatous tissue. There was entropium of the left upper lid and superficial keratitis, with vascular pannus of the upper halves of both corneæ, of mild degree, however, in the right. V. R. E. = $\frac{20}{70}$; V. L. E. = $\frac{10}{200}$.

July 30th.—Patient was admitted to the hospital and the operation of "grattage" was performed on both eyes. Canthotomy was performed on the right and a Streatfield-Snellen operation for correction of the entropium on the left eyelid.

31st.—No pain. Bandage not removed.

August 1st.—Bandage removed. Slight swelling of the left upper lid. A thin, fibrinous exudate covers the surfaces of the conjunctivæ of the upper lids. Rubbing with the bichloride solution (1 to 500) gave but little pain.

13th.—Conjunctivæ smooth. No trachomatous tissue. Patient sees well. Corneæ clear. Patient says that he has not felt so well for years.

Case V.—John K., aged twenty years. Trachoma for four years. There is a little vascular pannus at the upper part of both corneæ. A superficial infiltrated ulcer measuring about four millimetres in diameter occupies the center of the left cornea. There is some cicatricial tissue in the conjunctiva of both upper lids. Translucent hard trachomatous masses occupy portions of the tarsal and fornix conjunctivæ. The patient has been treated with the sulphate of copper off and on for two or three years. V. R. E. = $\frac{20}{40}$: V. L. E. = $\frac{5}{200}$.

August 1st.—Operation by "grattage" under ether.

2d.—Bandage removed. Very little reaction. Regular application of the bichloride solution (1 to 500) commenced.

3d.—Some pain in the left eye. The area of infiltration has increased. A free canthotomy was done to relieve all pressure. Hot applications of a saturated solution of boric acid were applied three or four times daily.

13th.—Conjunctiva of left eye smooth. Conjunctiva of right eye congested. Some irregular ridges are observable. The depressions between these ridges of tissue evidently mark the site of some of the transverse incisions. No pain.

15th.—Conjunctivæ smooth. Left cornea clearing rapidly. Vision good. Cured.

Case VI.—Dante B., aged twenty-four years. Trachoma for a number of years. Partial symblepharon of the lower lids and of the left upper lid from combustion with lime. Masses of trachomatous tissue in the tarsal and fornix conjunctivæ of the upper lids.

August 4th.—Operation without ether. The patient experienced much pain, but this subsided immediately when the operation was finished.

5th.—Very little reaction.

10th.—The patient's eyes were improving rapidly. However, he became insane and was sent to Bellevue.

Case VII.—Frank L., aged nine years. Trachoma in the early or first stage. Large frog-spawn-like granules. Conjunctivæ swollen.

August 4th.—Operation under ether by "grattage" and stripping with Noyes's forceps combined. Patient treated as an "out" patient.

6th.—But little reaction. Patient opens his eyes easily. There is a very little muco-purulent discharge. Treatment with the bichloride solution (1 to 500) and bathing with a saturated solution of boric acid.

11th.—The conjunctivæ are still thicker than normal. No pain. No trachomatous tissue.

September 1st.—Conjunctivæ smooth and pale.

Case VIII.—Joseph H., aged nineteen years. Isolated, horny trachoma granules situated on the outer third of the tarsus of each lid and extending into the fornix. Trachoma for many years.

August 8th.—Operation by "grattage." Patient treated as an out patient.

22d.—Conjunctivæ smooth. Patient has had no trouble with the eyes since the operation was performed. Had had constant treatment without result for six months previously.

Case IX.—Libby S., aged twenty-two years. Trachoma three years. There is some shrinking of the palpebral conjunctivæ of both eyes. Dense vascular pannus in the upper half of the cornea of the left eye. Large, discrete trachoma granules in the fornices coalesced over the upper halves of the tarsi.

August 11th.—Operation by "grattage" and squeezing with Noyes's forceps combined. The vessels as they passed over on to the cornea were divided at the limbus by the use of the galvano-cautery. A furrow one millimetre in width, extending to the sclerotic and four fifths of the circumference of the cornea, was made with the cautery point.

12th.—Very little reaction. Made cold applications for a few hours. Application of the bichloride solution (1 to 500) gave some pain. A fibrinous exudation covers the surface of the conjunctivæ. This exudation persisted for four or five days.

17th.—Discharged from the hospital.

22d.—Lids nearly smooth. Opens the eyes well. Cornea of the left eye much clearer. Patient suffers no inconvenience.

September 9th.—Conjunctivæ still a little rough. Some vascular pannus of the left cornea. Very slight discharge of muco-pus.

Case X.—Abraham S., aged eighteen years. Trachoma in the second stage. Very marked.

August 11th.—Operation by "grattage" and expression, using Noyes's forceps. A fibrinous exudation, which was almost if not quite entirely removed each time that the conjunctivæ were treated by rubbing with the bichloride solution, renewed itself, and persisted for seven days.

29th.—Lids smooth. Patient experiences no discomfort. Vision good.

Case XI.—Eliza K., aged eighteen years; trachoma of the left eye of two years' standing (in the second stage). Has been treated with the sulphate of copper, etc., for one year. Very little improvement.

August 8th.—Ether and operation by "grattage," and expression with Noyes's forceps.

18th.—A fibrinous exudate persisted for five days.

29th.—Lids smooth. No annoyance. No discharge.

Case XII.—Sigmund M., aged thirty-four years. Has had trachoma for a number of years. About a month ago was operated on by expression with the roller forceps. At present there is considerable trachomatous tissue in the palpebral conjunctiva of both eyes; most marked in the right eye. There is also a mild degree of superficial keratitis.

August 7th.—Operation by "grattage."

15th.—Lids of right eye smooth, but somewhat congested; keratitis not so marked. A layer of fibrin covered the conjunctiva for three days after the operation.

September 7th.—Lids smooth. Cornea much clearer.

About August 18th the keratitis increased in intensity, but subsided rapidly under insufflations of calomel and a solution of the nitrate of silver (one per cent.) to the conjunctiva.

Case XIII.—Otto M, aged four years. Trachoma for a year and a half. Treatment with the sulphate of copper has produced no appreciable improvement. Large trachoma granules are very numerous in the palpebral and fornix conjunctivæ. Operation on August 15th by "grattage," and expression by the use of Noyes's forceps. In this case considerable pain was experienced when the applications of the bichloride solution were used.

September 1st.—Conjunctivæ almost normal in appearance. No discharge.

Case XIV.—Samuel Wagner, adult male. Trachoma in the right eye for some years. Treatment by the ordinary methods of little avail. Trachoma in the second stage, with vascular pannus.

August 11th.—Operation by "grattage."

18th.—Patient was discharged from the hospital.

12th.—At present the conjunctiva is smooth, but still slightly congested; no pain; cornea clear.

27th.—Patient has been at work near a fire in a hot dusty room for a week. There is now a small infiltrated ulcer at the outer margin of the cornea and some vascular pannus.

September 10th.—The corneal ulcer has disappeared and the lid has become smooth under calomel insufflations and applications of nitrate of silver (one per cent.).

Case XV.—Julia M., aged ten years. Trachoma for a year and a half; now in the second stage. No pannus.

August 18th.—Operation by "grattage."

19th.—Very slight reaction. The conjunctival surface is covered with a plastic exudation, which leaves a bleeding surface when removed.

21st.—Patient opens the eyes without effort. No photophobia.

29th.—Conjunctivæ smooth, but a little swollen. No secretion. The patient has bathed the eyes with a saturated solution of boric acid twice daily, and the conjunctivæ have been brushed with a one-per-cent. solution of the nitrate of silver every second day for four or five days.

September 3d.—No further trouble. Discharged apparently cured.

Case XVI.—A. M., aged forty-one years. Trachoma of the right eye for about two years. Has been treated by the ordinary non-surgical methods for nearly a year without much benefit. Large plaques of trachomatous tissue occupy the upper half of the tarsal conjunctiva of the upper lid and fornix folds. Some pannus and superficial keratitis.

August 18th.—Operation by "grattage" without ether. The pain experienced by the patient was quite severe.

19th.—Very little reaction. Plastic exudation on the surface of the conjunctiva.

22d.—Conjunctiva smooth. Very slight muco-purulent discharge. No pain.

September 1st.—Conjunctiva smooth, but still a little red; cornea clear.

Case XVII.—William Levy, aged twelve years. Trachoma of five years' duration. Has been treated by the usual non-operative methods at three different times during periods of a number of months each time.

August 20th.—Operation under ether by "grattage" and expression combined.

21st.—But little reaction. No pain. A plastic fibrinous membrane covers the conjunctival surface. Treated as usual, the case went on to a complete cure, with but little evidence of cicatricial tissue.

Case XVIII.—Abraham R., aged nine years. Trachoma of some years' standing. At present there are a large number of closely associated, hard, trachomatous excrescences occupying the outer half of the fornix margin of the tarsal conjunctivæ of both eyes.

August 22d.—Operation under ether by "grattage." A few of the larger nodules were shaved off even with the surface of the conjunctiva. They cut like cartilage. The conjunctiva in the vicinity was cicatricial.

23d.—Absolutely no reaction. The conjunctival surface over the part operated on was covered with a fibrinous exudation.

September 3d.—Conjunctivæ a little rough; no secretion; no pain.

10th.—Conjunctivæ rapidly becoming smooth. There is a very little irritation of the ocular conjunctivæ dependent on the friction produced by the still slightly roughened palpebral conjunctivæ. Patient not seen after September 10, 1891.

Case XIX.—Mary G., aged eleven years. Trachoma in the second stage. Has had "sore eyes" for three years and a half. Trachoma follicles numerous; discrete in the fornix folds; coalesced over the tarsi.

August 21st.—Operation under ether by "grattage." The incisions in the conjunctivæ were made parallel to each other, but were not continuous. Canthotomy of the lids of both eyes was performed.

22d.—Reaction very slight; no pain. The surfaces of the conjunctivæ are covered with a fibrinous exudation (this persisted for four or five days). The case went steadily on to recovery.

September 10th.—The conjunctivæ of the upper lids show a few cicatricial bands at the outer canthi, the result, probably, of transverse incisions during the scarification.

Case XX.—Anna B., aged twelve years. Has had trachoma seven years. There is narrowing of the palpebral fissure, evidence of cicatricial contraction of the conjunctivæ. The trachoma granules have coalesced, and masses of trachomatous tissue occupy the tarsal and fornix conjunctivæ. There is vascular pannus and superficial keratitis of the upper halves of the corneæ.

August 27th.—Operation by "grattage," with canthotomy.

28th.—Fibrinous exudation over the surfaces of the conjunctivæ. Very little reaction.

September 2d.—No pain or discomfort. Conjunctivæ still red.

7th.—Conjunctivæ a little rough. The right cornea shows a vascular patch at the outer inner quadrant, apparently the result of friction of the lid against it. Some photophobia. No secretion from the conjunctivæ. By treating the conjunctivæ with silver and dusting calomel on the cornea, the vascular pannus subsided.

10th.—Patient experiences no trouble. Conjunctivæ still a little red.

Up to the present time I have operated on the lids of forty-one eyes in twenty-two individuals. In thirty-nine eyes the method employed was "grattage." This was combined with canthotomy in ten, canthoplasty in three, the Streatfield-Snellen operation for entropium in one, and expression, using Noyes's forceps, in twelve. In all the cases treated, with the exception of one, the disease had passed beyond the first stage. In one there was entropium, in two the excrescences were very dense, containing much connective tissue, in ten there was more or less vascular pannus and keratitis.

Of the twenty-two individuals operated upon, two were lost sight of soon after the operation was performed, seven (twelve eyes) were much improved, and thirteen (twenty-five eyes) were cured.

Considering the character of the cases, the results are, I think, very encouraging.

In performing the operation of "grattage" there are a number of steps that should be carefully observed.

1. If the palpebral fissure is at all narrow, canthoplasty, in preference to canthotomy, should be performed, as it is advisable to have entire relief from pressure on the cornea. This may be permanently obtained by canthoplasty and a tendency to entropium obviated. Canthotomy seldom, if ever, effects a permanent widening of the palpebral fissure.

2. In scarifying the conjunctiva the incisions should not be more than one sixteenth of an inch apart. They should be parallel to each other and to the surface of the lid. Transverse incisions are *harmful*, because of the form of cicatrix produced.

3. If there is considerable trachomatous tissue that can be expressed, Noyes's, Knapp's, or Gruening's forceps may be employed for this purpose, either before or after scarifying. This is not advised by the Paris operators, as they depend on the brush and scalpel to do this sufficiently. In the opinion of the author, expression hastens a cure in the cases referred to.

4. When the brush is being used it should be held obliquely to the incisions, in order that the bristles may enter the tissue beneath the narrow strips of epithelium and permit the bichloride solution to reach the interior of the trachoma granules. The epithelium should be disturbed as little as possible; much will be removed at the best. The brush need not be very stiff; however, the introduction of the bichloride should be thorough.

5. Where pronounced vascular pannus exists, it is better either to make an incision through the conjunctiva and episcleral tissue, around the cornea at the limbus, and even to remove a narrow strip of the conjunctiva, or the galvano-cautery knife may be used to make a furrow around the cornea; this is to divide the vascular trunks that pass on to the cornea and to aid in clearing up that membrane.

In regard to the after-treatment, generally speaking, the bandage is retained for twenty-four hours; afterward, the bichloride solution (1 to 500) is rubbed on to the conjunctival surface every day for six to ten days. This treatment should be supplemented by bathing the eyes with a solution of boric acid two or three times daily. Applications of the nitrate of silver are usually required if the redness of the conjunctiva continues for more than ten days or two weeks. In cases where there is subsequent keatitis, insufflations of calomel powder are of advantage. As a matter of fact, each case must receive after-treatment on its own merits. It is better to have the patient in the hospital for two to four days after the operation; however, they do very well when treated as "out" patients.

Some of the Conditions met with after the Operation.—It is not uncommon to see almost no reaction when the bandage is removed. The patient has no photophobia, and opens the eyes easily. On applying the bichloride solution, no pain is experienced. The conjunctival surface is smooth and normal in appearance. On close inspection, it is found that a plastic exudation has taken place, and that a firm layer of fibrin has filled the interstices, presenting a perfectly smooth surface to the cornea. This fibrinous membrane is more or less perfectly formed in almost every case, and persists in some cases for six to ten days, depending apparently on the condition of hyperinosis of the blood. The removal of epithelium from the conjunctiva, from whatever cause, may cause the formation of a fibrinous pseudo-membrane. It is because of the partial or complete removal of the epithelium that the pseudo-membrane forms in epidermic and membranous conjunctivitis, in gonorrhœa and diphtheria of the conjunctiva. The membrane after "grattage," if forcibly removed, leaves a bleeding surface. It disappears spontaneously if not interfered with. Applications of the 1-to-500 bichloride solution are usually more painful to the patient some days after the operation, when the terminal nerve filaments have again recovered their tone and when the fibrinous membrane has disappeared.

One of the striking results of this method of treatment is the immediate and complete cessation of discharge of any kind from the conjunctiva, converting the case from one of contagion to one of absolute cleanliness. The conjunctival surface assumes the condition of a clean wound, differing in this respect from the cases treated by expression alone. If the after-treatment is carried out, no secretion of consequence again appears. In a considerable percentage of the cases the conjunctiva does not become smooth until some time has elapsed after the operation. In these cases superficial keratitis, with an irritation pannus, which is always vascular, may appear, usually accompanied with photophobia and more or less profuse lacrymation. This has occurred in four of the eyes operated on by me. They yield in a few days to the daily application of a one-per-cent. solution of silver with insufflations of calomel, the conjunctival surface becoming smooth. There should be no pressure on the cornea in these cases. It was necessary to do canthoplasty in one case where canthotomy was first performed, the canthi having healed up. Conjunctival polypi may occur, but I have not seen them.

In considering the present status of the surgical treatment of trachoma, I think we may safely say that we are now possessed of a knowledge of methods sufficiently efficient to enable us to treat the first and second stages of trachoma successfully and to cure our patients within a relatively short period of time.

In regard to the utility of the methods practiced we may class them as follows:

1. Excision of the fornix folds is rarely, if at all, necessary, and should give place to other methods.

2. Expression of the contents of the trachoma follicles is applicable in the first stage of trachoma and is efficient; however, a vigorous antiseptic should be employed in connection with it.

3. The treatment by scarification and electrolysis with antiseptics, as employed by Johnson, is applicable in the first and second stages, and is efficient, according to his reports; but the method is complicated and the apparatus is cumbersome.

4. In "grattage," as described above, combined in some cases with the method by expression, we have an easily applied and efficient method of treating trachoma in what I have called the second stage. It may also be employed in the first stage.

For the purpose of facilitating the operation I have devised a forceps for holding the lids and a scarifier for making the incisions.

The forceps is an instrument very much like the scissors-handle catch artery forceps, and is made from four to six inches long, as desired (see Fig. 1). I am at present using one four inches in length. The joint is such that the two halves may be readily separated for the purpose of cleaning. The blades of the forceps are five eighths of an inch long; one blade is two sixteenths of an inch wide, the other three sixteenths of an inch wide. They are traversed on their opposing surfaces by five or six shallow grooves running in the direction of their long axes for the purpose of preventing them from slipping when in position on the lid. When in use the narrow blade is placed on the conjunctiva just at the margin of the lid, the broad blade is placed on the integument, and the forceps is closed, the catches on the handle serving to hold it in position. When the lid is rolled over the wide blade a broad surface of conjunctiva is exposed for treatment, a condition not obtained by narrow-bladed forceps.

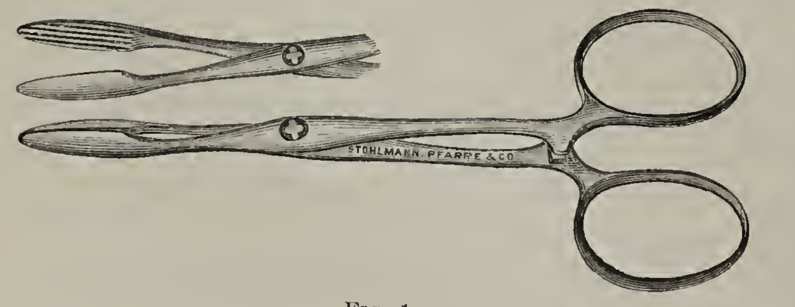

Fig. 1.

The scarifier (see Fig. 2) consists of a simple ivory handle on one end of which is placed a metal head slotted and fitted with a set-screw to hold three blades. The blades are half an inch long (they may be longer or shorter as desired), and are set so that their cutting edges are on the same plane. They are three sixteenths of an inch wide, and are ground lance-shaped, so that both edges are cutting edges. They are set at a distance of one thirty-second of an inch apart, a distance that enables the operator to make the incisions sufficiently far apart to prevent clogging of the instrument, and sufficiently near to each other to make the operation satisfactory. The blades may be removed, taken out and cleaned, and new ones substituted with ease and dispatch. I consider the instrument well adapted for making the incisions, which can be made as deep as the individual case requires.

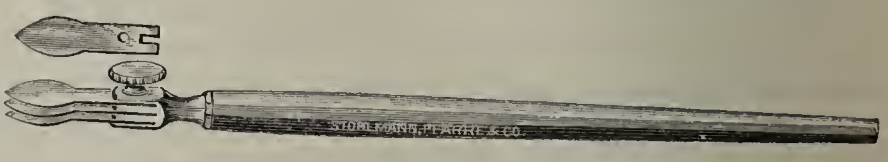

Fig. 2.

154 Madison Avenue.

NOTE ON THE

RAPID EXPLORATION OF THE UTERINE CAVITY

UNDER AN ANÆSTHETIC FOR DIAGNOSTIC PURPOSES.

By JAMES F. W. ROSS, M. D., C. M.,
TORONTO,
FELLOW OF THE BRITISH GYNÆCOLOGICAL SOCIETY;
FELLOW OF THE EDINBURGH OBSTETRICAL SOCIETY; FELLOW OF
THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNÆCOLOGISTS;
LECTURER ON ABDOMINAL SURGERY, UNIVERSITY OF TORONTO,
AND ON OYNÆCOLOGY, WOMAN'S MEDICAL COLLEGE, TORONTO;
GYNÆCOLOOIST TO THE TORONTO GENERAL HOSPITAL AND
TO ST. JOHN'S HOSPITAL FOR WOMEN, TORONTO.

At the April, 1891, meeting of the British Gynæcological Society, Dr. Fareourt Barnes related an interesting case of metrorrhagia, recorded in the society transactions.

Dr. F. Barnes is to be complimented on his frankness, and, though I differ with him and with many of those who followed him in the discussion, I do so in the most friendly spirit.

I believe that the uterine appendages should never be removed for uterine hæmorrhage when no definite cause can be made out from an examination under chloroform until after the uterine cavity has been explored with the finger. I saw a case in consultation with my friend Dr. Temple, of Toronto, a year ago, similar to that related by Dr. F. Barnes. The patient was the sister of a medical man. She was blanched from uterine hæmorrhage. Several others had seen her in consultation and had failed to make out anything abnormal. I examined her and also failed to find anything but a very full-sized uterus for a nulliparous and unmarried young woman. Dr. Temple dilated with tents. When I saw her the temperature was 101° F., pulse 120. This rise of temperature and pulse frequently occurs from the use of tents. On passing in the finger, a small submucous, sessile fibroid was found; its capsule was scraped through and it was removed with a sliding-bar forceps that I use for removing anything from the interior of a small uterus.

The patient recovered; she is in good health; her hæmorrhages have ceased, and, what is important to her, she still has her ovaries and tubes. The fibroid was apparently single, and I am watching her with interest as to the result of wedded life when she marries.

I am firmly convinced that the cases of obscure hæmorrhage from the uterine cavity are in the main due to the presence of small, almost unrecognizable, fibroids. The finger in the cavity of the uterus is the only exact means of diagnosis we possess.

I have yet to meet with the first case of damaged appendages produced by rapid dilatation and exploration with the finger, done after the method about to be described. Tents I will not use, and I believe they should never be used. Gradual dilatation by means of elastic pressure I have used and found to be uncertain and troublesome. The dilator slips out of place and gives rise to a nasty discharge and much pain and restlessness. It can not be kept aseptic after it has been in the vagina for a few hours.

I frequently explore the virgin uterus with my finger, before my class at the Toronto General Hospital, in about twenty minutes after complete anæsthesia. Any one can do the same. I have yet to see any ill result. But to be successful one must have his dilator scrupulously clean, and the vagina and cervix must be thoroughly disinfected.

The pyosalpinx that is spoken of as a result of dilatation is as much the result of dirt as the gonorrhœal pyosalpinx is the result of the gonorrhœal organism, or as puerperal fever is the result of a septic finger.

The method of procedure is as follows: I wash my hands as scrupulously as if I were going to open an abdomen, and my assistant's hands are also thoroughly washed. The patient is placed upon her back, with her knees drawn up by a Clover's crutch, and the anæsthetic is given. A trivalve speculum is inserted into the vagina, and the vagina is thoroughly saturated with a 1-to-500 solution of bichloride of mercury. Goodell's dilator, taken from boiling water and cooled sufficiently, is then inserted into the cervix after the position of the uterus has been made out with an aseptic uterine sound.

The cervix is gradually dilated, and when the limit of the instrument (an inch and a half) is nearly reached, the blades are allowed to fall together again so as to relieve the tension for a moment and restore the circulation of the part. When the limit is reached this is also done, and the blades are again separated so as to make the dilatation as complete as possible. The dilator must be passed beyond the internal os; this can be accomplished by steady gentle pressure before the blades are separated.

The dilator is now removed, two double tenacula are fastened on to the cervix well up, and the speculum is removed. The uterus is now drawn down and the little finger of the right hand inserted into the vagina and into the cervix, with the thumb pointing toward the floor and the ulnar edge of the arm pointing toward the ceiling.

The finger will readily enter the uterus, and the interior can be thoroughly explored. In many cases the index finger can be used, but cases are met with in which an undue amount of force will be required to push in the first finger, unless the dilatation is carried on further, and more time is consumed. For the purpose of diagnosis the insertion of the little finger will be all-sufficient.

The uterine cavity is packed with iodoform gauze and the vagina is filled with the same material. The patient is kept in bed for several days, and the gauze is removed in forty-eight hours. The vagina is then refilled with gauze, and this is again left for forty-eight hours, when a cleansing douche is given.

The temperature frequently drops after the operation below normal, and may rise suddenly after to 101° for a little while. The pulse is rarely affected.

I have used tents and the elastic compression dilators. They are both superfluous. Those who are not worshipers at the shrine of aseptic surgery should never attempt this little operation. The germicides must be the very best we can procure, and no part of aseptic surgical precautions must be omitted. I had a case in which pelvic inflammation followed the simple introduction of a sound in my younger days, and I had a similar accident after an office dilatation some years ago. But no particular precautions were taken then.

Uterine dilatation should not be performed in the office or clinic unless the patient is prepared to remain over night and for several nights. By such practice the operation is brought into disrepute. It is an operation that requires some skill. Surgeons can not all crush a stone in the bladder with equal skill, and they can not dilate and explore a uterus with equal skill. A short time ago I curetted a uterus after dilatation and exploration with the finger for a neighboring physician. I asked him to introduce his little finger, owing to the rigidity of the internal os. He was not satisfied with this, but poked away with his index finger, which was considerably larger, until I feared he would tear the uterus from the vagina.

The practice of making irritant applications—such as carbolic acid, iodine, etc.—after dilatation and exploration with the finger is to be condemned. Sufficient irritation has been produced for one sitting by the dilatation and manipulation, and such applications seem like adding insult to injury.

By this method of exploration I have diagnosticated in the past year cancer of the fundus, sloughing intra-uterine fibroid, fungous endometritis, and retained portion of placenta, and have explored in one case twice, with an interval of four months, with negative results.

I have dilated in many other cases, but do not mention them in this connection, because no digital exploration was required. They were chiefly cases of retroflexion and subinvolution.

Goodell has certainly given us the best and safest dilator, if used by experienced and gentle hands and by an aseptic surgeon.

I am satisfied that the crusade against rapid dilatation or any form of dilatation has not been carried on without good cause. But uterine exploration by the finger is a necessity, and the rapid method with proper care is certainly the least likely to be followed by untoward results. There is a medium course in medical and surgical procedures that many fail to observe, and hence they run to extremes. They see only the evils of a surgical procedure, and, without trying to overcome them, they discard the procedure as something utterly bad.

A TOY BALLOON IN THE TRACHEA;

*REMOVAL.**

By W. C. GLASGOW, M. D.,
ST. LOUIS.

On April 22d, N. H., a colored child, aged eight years, was brought to the Polyclinic with the following history: It was stated that two hours previous to this time the child had swallowed a toy balloon, that she had had several severe choking spells, but that in the intervals her breathing was normal. When brought to the clinic there seemed to be nothing the matter with her. Her breathing was perfectly quiet and normal, there was no cough, her voice was clear, and there seemed to be no interference with respiration. In the face of these conditions her story seemed almost incredible. Suddenly, however, without any apparent cause, she began to struggle as if for air. She became quickly cyanotic, her cry was toneless, and there was frothing at the mouth.

This spell subsided in a few minutes with the return of the normal condition. She was seen by Dr. Charles H. Dixon, of the surgical clinic, and the diagnosis of a foreign body in the trachea was made.

I saw the child soon after this, and could hardly credit the statement made by her friends, her breathing was so easy and natural, and it seemed impossible for this condition to exist with a body of the size of the balloon in the windpipe.

I explored the throat and naso-pharynx only to bring on a terrific attack of strangulation, an examination of the chest showing a whistling râle over the left bronchus, with weakening of respiratory murmur.

She was then chloroformed, and a low tracheotomy made by Dr. Dixon. He passed a sound into the trachea, but could detect nothing.

After the anæsthetic her breathing remained quiet for twenty-four hours. It was somewhat hurried, but free and easy; there was diminished resonance over the left lung, with feeble respiratory murmur and numerous mucous râles. There was no cough or spells of suffocation. On the fifth day she had several coughing spells, with symptoms of strangulation, which lasted a few minutes. During one of the violent efforts of coughing a red substance was seen presenting at the tracheal wound. Dr. Dixon caught this with a forceps, and, although but gentle traction was used, the red rubber came away from its attachments, leaving the wooden tube in the trachea. Chloroform was now given, and the wooden tube, which in the effort at extraction had been forced above the tracheal wound, was forced upward through the glottis and removed through the mouth. It was too large to pass through the tracheal opening.

The next day surgical emphysema was seen over the whole anterior part of the chest. The left lung gave numerous mucous râles with a distinct, full, respiratory murmur.

The specimen I present to you is the balloon extracted from the trachea. The wooden part measures an inch and three sixteenths in length and five sixteenths of an inch in diameter.

This case presents several points of interest. It is puzzling, in the first place, to know how such a small child succeeded in getting such a shaped body as a toy balloon through the glottis into the trachea, and, when there, how little it affected the breathing. The strangling spells, with loss of voice, appear to have been caused by the rubber having been driven upward between the cords. My friend Dr. Dixon was of the impression that these attacks were produced by the displacement of the body covering both bronchi through an inflation of the balloon.

PYOSALPINX,

WITH ADHESIONS TO THE VERMIFORM APPENDIX, BLADDER, SMALL INTESTINES, AND OMENTUM, SUCCESSFULLY REMOVED.

By JOHN R. HINKSON, M. D.,
BLISSVILLE, LONG ISLAND CITY, N. Y.

Mrs. S., aged twenty-one, married eighteen months, was seen by the writer on April 5, 1891. She complained of persistent pain in the right iliac region and thigh, which increased in severity during menstruation; she also gave a history of having had peritonitis a year previous, from which her present trouble seemed to date.

An examination was made and a tumor of about the size of an orange discovered behind and to the left of the uterus. The tumor was hard and smooth, in which no fluctuation could be detected, and it also appeared to be freely movable.

The operation was performed under the most rigid antiseptic precautions at the patient's residence, which was a farmhouse, on May 3, 1891. The patient being anæsthetized, an incision was made in the median line of the abdomen, and, on exploration, a tumor of about the size of an adult fist was found posterior and to the left of the uterus, the pedicle being to the right. It was intimately adherent to the vermiform appendix, small intestines, omentum, and bladder, the adhesions to this organ being extremely dense. Fluctuation was also distinctly felt. The surrounding organs were easily separated by sponging except in the case of the bladder, where considerable force was required. During this procedure the sac ruptured and a quantity of thick, curdy pus escaped, but was prevented from entering the peritoneal cavity by sponges applied to the opening. The pedicle, which was very short, was clamped with Wells's forceps and the tumor removed with the actual cautery, after which a double ligature of silk was applied; there were also two small cysts, each of about the size of a marble, in which pus was plainly visible; these were treated in the same manner. The peritoneal cavity was irrigated with Thiersch's solution and drained with iodoform gauze, and the abdomen closed by interrupted sutures of silk. The dressing was composed of iodoform and corrosive-sublimate gauze, over which was applied a layer of absorbent cotton.

The patient vomited almost incessantly for three days, but had little pain, and the temperature did not rise above 99 2° F. and the pulse not above 100. On the evening of the fourth day an enema of soap and water was administered, after which the patient experienced some pain and the temperature rose to 99·8°, but fell to normal in a few hours. After this the pulse and temperature remained normal and the patient was allowed her customary diet.

The dressing, which was quite moist, was changed on the fifth day and again on the sixth, when the gauze was removed from the peritoneal cavity and the wound irrigated with peroxide of hydrogen. There was no suppuration nor any offensive odor.

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* Read before the American Laryngological Association at its thirteenth annual congress.

On May 11th the sutures were removed. The edges of the wound were found to have completely united except for three quarters of an inch at the lower extremity, where the gauze had been employed for drainage. Here granulation had begun and the opening was already closed.

The patient was permitted to leave her bed on the sixteenth day and the wound had completely healed by the twenty-first. She still suffers from dysmenorrhœa and occasional pains in the right iliac region; otherwise she feels quite well.

A CASE OF SPURIOUS PREGNANCY.

By W. M. CRAIG, M. D.,
KENNEY, ILL.

The following case will be of interest to every physician that has not had a case of this kind:

On May 10, 1891, I was called in haste to see Mrs. R., aged thirty-two, a woman of large stature, well nourished, and of American descent. On arriving, I found her, as I supposed, in labor. I at once asked her whether she thought her time was up and when she thought she had conceived. She could only date her time from the first fœtal movement, but she insisted that her time was up. My questions revealed another fact. I found she had menstruated regularly every month; also she told me she had consulted another physician and he said she was pregnant, and the cause of hæmorrhage was a placenta prævia; so I decided to make a digital examination, which gave me no satisfaction. The pains kept up, seemingly doing her no good, so I concluded to give her an eighth of a grain of morphine sulphate, after which all pains ceased. I found at this visit that the abdomen was prominent and that the areolæ were altered, and she said she felt fœtal movement. Her breasts were enlarged and milk was oozing out. I left her three or four one-eighth-of-a-grain doses of morphine sulphate, and told the family to let me hear from her later. I did not hear anything of her until July 25th, when her husband came to my office for some treatment. At this time she complained of her kidneys and a general weakness. I prescribed for her and heard nothing of her until September 6th. On that date her husband came hastily after me and said his wife was in labor. I found her suffering as before, and there could hardly be any of the more apparent symptoms of pregnancy present than were present in this case at that time, with the exception that the abdomen was not so prominent as I had found it on the 10th of May. I made another external examination, which revealed nothing, so I made a vaginal examination, which satisfied me she was not pregnant, from the fact of finding the uterus almost normal in size and a profuse leucorrhœal discharge. On further questioning my patient, I find she has but one child, a boy now thirteen years old; she also tells me her health has been poor ever since the birth of this child, and that physicians have told her if she gave birth to another child her health would be restored. She has been very anxious to give birth to another child, and I think her over-anxiety to conceive is the cause of this spurious pregnancy. From the first time I saw this woman up to the present time she has had implicit confidence in me, so I had no trouble in changing her mind, and since September 6th she has been doing her housework and goes visiting without any inconvenience or pains. All symptoms of pregnancy have disappeared. I am treating her for her local trouble, which seems to be kindly yielding.

THE
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A Weekly Review of Medicine.
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Frank P. Foster, M. D.

NEW YORK, SATURDAY, OCTOBER 24, 1891.

OXYGEN AS A REMEDY IN CHLOROFORM NARCOSIS AND CHLORAL POISONING.

The therapeutic action of oxygen, taken by inhalation, has an imperfectly recognized position with the profession at large. The *Medical Press and Circular* for June 3d, speaking for the English medical faculty, states that the remedial employment of the gas has, in Great Britain, "been almost discontinued, chiefly for the reason that until quite recently the difficulty of procuring a supply of the pure gas and the delay, trouble, and expense attending its administration did much to prevent it occupying such a place in the therapeusis of the practitioner as its known physiological effects warrant." At the present time, however, the compressed gas in iron bottles can be obtained from the apothecaries in the English cities "with the same facility as any other drug." The writer regards with surprise the unaccountable fact that one of the most active of therapeutic agents has been so little used that it may be said to have no place in practical therapeutics. As a quick and efficient respiratory and cardiac stimulant it is deserving of more frequent employment in cases of asphyxia, whether resulting from poisonous gases or general anæsthetics.

In the suffocation of angina pectoris, the writer says, the beneficial action of the gas has been abundantly proved, and among other cases occurring latterly was that of General Philip Sheridan, in which the treatment followed was like that of Dr. Robert Reid, of Dublin, who, in 1817, used and advocated the gas as a practicable remedy for this affection. One of Dr. Reid's cases was that of a man, aged sixty-four, who had suffered greatly from angina, and who obtained an amount of relief from oxygen by inhalation that no other agency gave him. The effect of the gas is, however, generally temporary, but life may often be saved by a temporary tiding over of the suffocative attack. The writer quotes from a recent number of the *Nineteenth Century* a case of gas poisoning which was successfully treated by oxygen inhalation. A soldier was found apparently lifeless and pulseless in consequence of having been exposed for a considerable time to coal gas from a burst balloon. An officer of his command bethought himself of a bottle of compressed oxygen as a possible antidote. A tube having been attached to the bottle, its mouthpiece was conveyed to the man's mouth. The oxygen was liberated through the tube and appeared to force its way into the man's lungs and to become an immediate stimulant to the respiratory organs. In from ten to fifteen seconds from the first outrush of the oxygen gas the man, who had just before presented the aspects of a livid corpse, became agitated with paroxysms of a violence so marked that it was deemed expedient to order four of his comrades to hold him quiet. A half-hour later the man was calmly walking back to the barracks, all danger being at an end. The writer accepts both the authenticity and promptness of the recovery in this case as a lesson in the treatment of cases of poisoning with carbon gases, especially those of the methane series. He also commends it to the attention of all who are concerned in the administration of anæsthetics, and remarks: "How much better a whiff of pure oxygen than artificial respiration in chloral poisoning and chloroform narcosis!"

So far as the writer's knowledge extends, there are only two publications in which any advocacy has been made of this plan of treatment—namely, the work of Mr. George Foy on *Anæsthetics*, and M. Demarquay's *Pneumatology*. The writer adds: "Hospitals are provided with electric batteries to resuscitate the asphyxiated and to stimulate the respiratory function, but a more useful and active remedy, oxygen, finds no place in the emergency apparatus of the operating theatre. We hope, however, soon to be able to report that all our general hospitals are provided with a stock of oxygen gas and a suitable apparatus for its administration."

In a later number of the *Press and Circular* a retired army surgeon adds the suggestion, germane to the foregoing, that a supply of oxygen might with propriety be made a part of the medical supplies of military stations, for emergencies by drug poisoning, narcosis, and other forms of asphyxiation. Oxygen may be serviceable in the after-treatment of surgical cases. Dr. A. W. Catlin touches upon this subject in the *Brooklyn Medical Journal* for August, in an article entitled Oxygen as a Distinct Remedy for Disease and a Life-saving Agent in Extreme Cases. He observes that after prolonged surgical operations, where the patient has been "thoroughly saturated with the anæsthetic," and where as a consequence recovery is tardy and convalescence is unsatisfactory, oxygen may be administered and will be found to enhance the reparative functions of assimilation and to quicken local repair. Oxygen is a great burden-lifter from the heart in most cases of dyspnœa, and indirectly quiets nervous storms so that sleep is seen not infrequently to follow in the train of an improved aeration of the blood by means of its inhalation.

THE MEDICAL CORPS OF THE NAVY AND THE PAN-AMERICAN CONGRESS.

MOST of our American readers have probably read the newspaper accounts of an unpleasant occurrence that lately took place in St. Louis, at a meeting of a committee created by the American Medical Association to arrange for the organization of an American Intercontinental Medical Congress. According to its custom in such matters—a most unreasonable custom, we think—the American Medical Association designated a gentleman to represent the navy on the committee. When the time came for the committee to meet, so the report runs, it was found that the Secretary of the Navy had declined to allow the gentleman chosen by the association to attend, stating that the officer's duties did not admit of his absence from his post at the time; that the Secretary of the Navy had then designated another officer of the medical corps to act on the committee; that the medical officer so designated was present with his credentials; and that in the mean time the officer originally chosen had authorized either one of two civilians to represent him, but that neither of them was in attendance. The committee declined to allow the Secretary of the Navy's appointee to sit as a member, although it suffered him to be present and to "make such suggestions as would be proper," but not to "take part in the vital questions brought before the body." In other words, he was a delegate *near* the committee, but, as he himself said, "not in it." He endured his humiliation until he found that there was no hope of redress, and then, after making some denunciatory remarks, withdrew.

It is very much to be regretted that the difficult task of organizing a creditable congress of the profession in all America has thus at the outset been complicated by this unseemly occurrence, and it seems to us that it might have been avoided. We think that the Surgeon-General of the Navy should have been asked to appoint a representative of his corps for the occasion. Such a course would have prevented the unfortunate occurrence in question, but, as it had not been taken, we do not see how the committee itself could pursue any other policy than the one it did pursue.

MINOR PARAGRAPHS.

ANTISEPTICS IN CATARACT EXTRACTION.

As corrosive-sublimate solution is used so frequently in the treatment of eyes during cataract extraction, Mellinger's experiments on rabbits, reported in the *St. Petersburger medicinische Wochenschrift*, may be of interest. He treated the eyes of these animals with the greatest care, first using a cocaine solution and then sterilizing the parts with a solution of corrosive sublimate, 1 to 5,000. After a careful incision of the cornea the eye was washed again with the sublimate solution. He found in a number of the cases that, if the solution remained in the anterior chamber for any length of time, a form of parenchymatous keratitis was set up. The endothelium was softened and became liquefied, finally causing intra-ocular pressure with destruction and perforation of the cornea. He has seen an exceedingly weak solution cause trouble, such as delay in the healing of the wound He advises a weak solution of chloride of sodium and boric acid, with irrigations of a boric-acid solution, after the extraction. These, he says, have the advantage of being sufficiently antiseptic, do not cause any injury to the delicate structures of the anterior chamber, if any of the fluid remains in it, and do not prevent healing of the wound. He thinks that by using these solutions the dangers of cataract extraction are very materially lessened.

ETHERIZATION IN CROUP.

BY the means of intubation and tracheotomy, the mortality in croup has been very much lowered, but the necessary instruments and the ability to use them are not possessed by every general practitioner, so that the discovery of any new method which offers a hope of assistance in tiding over the critical period in this disease is received with interest. Dr. Betz, in the *Centralblatt für die gesammte Therapie*, reports a case of laryngeal croup in which the patient, a child thirteen months old, was in imminent danger of suffocation, and, the means not being at hand for surgical interference, etherization was resorted to with success. Three or four drops of a mixture of three parts of sulphuric ether and one part each of acetic ether and menthol were given by inhalation every half-hour. For four hours the child was kept under light narcosis, and at the end of eight hours the improvement was so great that there was no necessity for an operation. The author has since treated successfully two other cases of a similar degree of severity.

AN OPERATION FOR TETANOID CONVULSIONS.

The *Centralblatt für klinische Medicin* refers to a case of Mr. T. R. Ronaldson's, recorded in the *Edinburgh Medical Journal*, in which a perfectly healthy child was attacked with tetanus on the eleventh day after birth. The birth had been a normal one, except that the child had a very thick umbilical cord. On examination, the stump was found discolored and foul-smelling. Symptoms of inflammation had not been present. Frequent washings with a corrosive-sublimate solution were carried out and everything was done to prevent a recurrence of the convulsions, but without avail. On the twenty-third day the author performed excision of the navel, with the result of the gradual diminution of the frequency of the attacks. By the end of the seventh week the convulsions had entirely disappeared and the child was restored to perfect health. There were no micro-organisms found in the excised umbilical stump.

QUININE POISONING.

Dr. A. Erlenmeyer reports in the *Centralblatt für Nervenheilkunde* a case of poisoning with this drug which is of some interest. The author had previously observed abolition of the reflexes in several patients who were taking large doses of quinine, but in the case under consideration the symptoms were those of an intense reflex irritability. The patient, aged forty-two years, had taken at one dose a gramme of quinine (about fifteen grains), and on the following day two grammes in divided doses. Examination of the reflexes at this time, by tapping and the other tests, brought on general convulsions, with violent contractions of the arms and the whole body. Leaving off the medication for twenty-four hours would cause a disappearance of the nervous excitability.

THE DETERMINATION OF THE SEX OF THE FŒTUS IN UTERO.

The determination of the sex of the fœtus becomes an important matter when the mortality of infants and mothers, with reference to the larger size of the head of the male child, is taken into consideration. Dr. Ross, of Belfast, says, in the *British Medical Journal*, that he has been able for some years to positively foretell the sex of a child before birth. This he decides upon from the locality in which the mother says she feels the fœtal movements most distinctly. His rule is, if the mother describes the fœtal movements as felt chiefly and most distinctly on the left side, to predict a male birth; if on the right, a female. The author thinks that such knowledge will be a gain to the obstetrician in many ways.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 20, 1891:

DISEASES.	Week ending Oct. 13.		Week ending Oct. 20.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	53	17	55	11
Scarlet fever	59	9	82	4
Cerebro-spinal meningitis	2	4	1	1
Measles	37	2	34	11
Diphtheria	74	17	90	25
Small-pox	1	0	0	0
Erysipelas	0	0	0	0
Varicella	0	0	0	0
Pertussis	1	7	0	3

The Medical Society of the County of St. Lawrence, N. Y., held its semi-annual meeting in Ogdensburg on Tuesday, the 20th inst. The vice-president, Dr. W. H. Reynolds, of Potsdam, was announced to deliver an address, and papers were set down on the programme as follows: Nervous Prostration, by Dr. E. H. Bridges, of Ogdensburg; Cirrhosis of the Liver, with Report of a Case, by Dr. J. Reynolds, of Potsdam; Apoplexy, some of its Causes and Preventives, by Dr. John C. Sherman, of Ogdensburg; Chronic Obstruction of the Common Bile Duct by Gall-stones, with Report of a Case, by Dr. W. B. Hanbidge, of Ogdensburg; and Cerebro-spinal Sclerosis, by Dr. F. F. Drury, of Gouverneur.

Changes of Address.—Dr. William S. McMurdy, to No. 332 West Fifty-first Street; Dr. Charles C. Ransom, to No. 152 West Forty-eighth Street; Dr. Sinclair Tousey, to No. 29 West Thirty-eighth Street; Dr. John E. Weeks, to No. 154 Madison Avenue.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 11 to October 17, 1891:*

Taylor, Arthur W., Captain and Assistant Surgeon, will, by direction of the President, report in person to Colonel John Mendenhall, Second Artillery, president of the Army Retiring Board, at Fort Adams, Rhode Island, for examination by the board.

Beall, George T., Captain and Medical Storekeeper, granted leave of absence for one month. During absence of Captain Beall, Assistant Surgeon Charles B. Ewing, attending surgeon, St. Louis, Mo., will take charge of the Medical Purveying Depot in that city.

Gandy, Charles M., Captain and Assistant Surgeon, is relieved from duty with Army Medical Board, to take effect on its final adjournment, and ordered to Fort Yellowstone, Wyoming.

Suter, William N., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort McKenney, Wyoming, and ordered to Fort Grant, Arizona, for duty.

McVay, Harlan E., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Mackinac, Michigan, and ordered to Fort Wingate, New Mexico.

Glennan, James D., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Riley, Kansas, and ordered to Camp Oklahoma, Oklahoma Territory.

Ireland, Merritte W., First Lieutenant and Assistant Surgeon, is relieved from duty at Jefferson Barracks, Missouri, and ordered to Fort Riley, Kansas.

Benham, Robert B., Captain and Assistant Surgeon, is relieved from duty at Fort Hamilton, New York, and ordered to Mount Vernon Barracks, Alabama, for duty.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending October 17, 1891:*

Dickson, S. H., Surgeon. Ordered to the Marine Barracks, Washington, D. C.

Magruder, A. F., Surgeon. Detached from the Marine Barracks, Washington, D. C.

Ferebee, N. McP., Surgeon. Ordered to the U. S. Steamer Atlanta.

Drennan, M. C., Surgeon. Detached from the U. S. Steamer Atlanta.

Tryon, J. R., Surgeon. Ordered to the U. S. Steamer Chicago.

Walton, J. C., Medical Inspector. Detached from the U. S. Steamer Chicago and granted six months' leave.

Keeney, J. F., Passed Assistant Surgeon. From the U. S. Steamer Minnesota and to the Naval Hospital, New York.

Crandall, R. P., Passed Assistant Surgeon. From the Naval Hospital, New York, and to the Naval Laboratory.

Boyd, Robert, Assistant Surgeon. From the Marine Rendezvous, Boston, and to the U. S. Steamer Chicago.

Alfred, A. R., Assistant Surgeon. From the U. S. Steamer Fern and to the U. S. Steamer Kearsarge.

Gates, M. F., Assistant Surgeon. From the U. S. Steamer Kearsarge and to the U. S. Steamer Fern.

Ames, Howard E., Surgeon. Ordered as delegate to the American Public Health Association, Kansas City, Mo., October 20, 1891.

North, James H., Assistant Surgeon. Resignation accepted September 8, 1891.

Magruder, A. F., Surgeon. Ordered to the Boston.

Dixon, W. S., Surgeon. Detached from the Boston and granted leave for two months.

Marsteller, E. H., Passed Assistant Surgeon. Ordered to special duty at Baltimore, Md.

Drake, N. H., Passed Assistant Surgeon. Detached from the Albatross and granted leave for two months.

Wieber, F. W. F., Passed Assistant Surgeon. Detached from the Pensacola and ordered to the Albatross.

Bradley, George P., Surgeon. Detached from the Naval Hospital, Chelsea, Mass., and ordered to the Receiving-ship Wabash.

Braithwait, F. G., Assistant Surgeon. Detached from the Wabash and ordered to the Naval Hospital, Chelsea, Mass.

Beyer, H. G., Passed Assistant Surgeon. Ordered to the Naval Academy, Annapolis, Md.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending October 10, 1891:*

Vansant, John, Surgeon. Granted leave of absence for twenty-three days. October 8, 1891.

Long, W. H., Surgeon. Granted leave of absence for thirty days. October 7, 1891.

Hamilton, J. B., Surgeon. To represent the service at the meeting of the Mississippi Valley Medical Association. October 2, 1891.

Gassaway, J. M., Surgeon. Leave of absence extended five days. September 28, 1891.

Wheeler, W. A., Passed Assistant Surgeon. Granted leave of absence for thirty days. October 7, 1891.

Peckham, C. T., Passed Assistant Surgeon. To represent the service at the meeting of the Mississippi Valley Medical Association. October 2, 1891.

Bratton, W. D., Passed Assistant Surgeon. Granted leave of absence for thirty days. October 7, 1891.

Pettus, W. J., Passed Assistant Surgeon. To proceed to Norfolk, Va., for temporary duty. October 2, 1891.

Magruder, G. M., Passed Assistant Surgeon. Granted leave of absence for twenty days. October 7, 1891.

Woodward, R. M., Passed Assistant Surgeon. Granted leave of absence for thirty days. October 6, 1891.

Vaughan, G. T., Assistant Surgeon. Granted leave of absence for thirty days. October 6, 1891.

Cobb, J. O., Assistant Surgeon. To proceed to Buffalo, N. Y., for temporary duty. October 7, 1891.

Guitéras, G. M., Assistant Surgeon. To proceed to Mobile, Ala., Pensacola and Mullet Key, Fla., on special duty. October 10, 1891.

Brown, B. W., Assistant Surgeon. To report to the medical officer in command, San Francisco, Cal., for duty. October 3, 1891.

Society Meetings for the Coming Week:

Monday, *October 26th:* Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

Tuesday, *October 27th:* Tri-State Medical Association of Alabama, Georgia, and Tennessee (first day—Chattanooga); New York Dermatological Society; Buffalo Obstetrical Society; Medical Societies of the Counties of Putnam (quarterly), Queens (semi-annual—Garden City), and Rockland (semi-annual), N. Y.

Wednesday, *October 28th:* New York State Medical Association (first day—New York); New York Academy of Medicine (Section in Laryngology and Rhinology); Tri-State Medical Association of Alabama, Georgia, and Tennessee (second day); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Auburn, N. Y., City Medical Association; Berkshire, Mass. (Pittsfield), and Middlesex, Mass., North (Lowell) District Medical Societies; Gloucester, N. J., County Medical Society (quarterly); Philadelphia County Medical Society.

Thursday, *October 29th:* New York State Medical Association (second day); Tri-State Medical Association of Alabama, Georgia, and Tennessee (third day); Massachusetts Medical Benevolent Society (annual).

Friday, *October 30th:* New York State Medical Association (third day).

Letters to the Editor.

ARSENITE OF COPPER.

Bryn Mawr, Pa., *October 19, 1891.*

To the Editor of the New York Medical Journal:

Sir: Experience has taught the average physician that there are no specifics in medicine; that certain favorite remedies will fail under some conditions; that one epidemic can be controlled by a certain remedy, and in the next it will entirely fail; that one man can be successful with a certain remedy and another get no results from it; and that certain conclusions can not be drawn from the results of "two years' experience" in a limited number of cases, but that the combined experience of a large number of practicing physicians, extending over many years, must be brought together to form what might be called approximate facts.

One should not be led to fall into the mistake that, because a drug fails in his hands in a number of cases, he believes it to be "no other than a chemical curiosity, possessing feeble properties in the doses recommended, if any at all." In the issue of this journal for October 10th a fellow practitioner relates a number of cases treated with the arsenite of copper, and, from his failures to get good results, relegates the remedy into the list of "chemical curiosities." It is readily seen that the brother has been led to draw wrong conclusions for one of four reasons:

1. Was the preparation used by him a reliable one? Arsenite of copper is practically insoluble in water, but can be held in suspension if thoroughly triturated with sugar of milk. This is the common method of administration. Any triturate of arsenite of copper that will not dissolve (be suspended) thoroughly in boiled water, after half a minute's stirring, may be classed as a doubtful preparation. Five preparations from different firms, in my hands, gave absolutely no good results in any case, whereas the tablet from another firm has *never* failed me. Be sure that your preparation is wholly reliable.

2. Diarrhœa can never be controlled by this or any other remedy unless dietetic and hygienic measures are considered.

3. The patient must be in a proper condition for the administration of the arsenite of copper. What good can be accomplished by giving the remedy if there is a mass of decomposing vegetable or animal matter lying in the intestines and acting as the source of irritation? Why treat the *symptom* diarrhœa with arsenite of copper when it is dependent entirely on some constitutional trouble that needs rectifying with other remedies? It has been my rule in every case of diarrhœa to see that all excrementitious matter is carried from the bowels with small doses of calomel or aromatic syrup of rhubarb, and then depend on the arsenite of copper for its antispasmodic, astringent, and, probably, antiseptic action. Do not forget that the first principle in all cases of diarrhœa is elimination.

4. The dose. Arsenite of copper is an irritant to the gastro-intestinal canal in large doses, and must be used accordingly. Experience dictates that the best dose to give is about one two thousandth of a grain, in boiled water, every ten to thirty minutes, until the symptoms lessen.

Admitting the fact that diarrhœa ranks with the diseases that have a tendency "to limit themselves," could the doctor say that the many thousands of cases that have been treated successfully with this drug were mere coincidences, and would have ended in recovery in the same period of time without medication? Too much testimony, founded on actual clinical experience, has been given to the good effects of this drug to class it in the list of chemical curiosities. True, some statements have been made that can not be substantiated, but this does not affect its action in other directions. Attacks of cramps, stomachic colic, and uterine colic are frequently entirely relieved by the copper salt, if given every ten or fifteen minutes in the doses mentioned. Sometimes the salt will fail in this class of cases. It should always be given in water that has been previously boiled, and never as a plain tablet, if prompt results are expected.

While writing on this subject, let me suggest two favorite formulæ for treating diarrhœa. After elimination has been accomplished by a suitable cathartic or laxative, and attention paid to diet and hygiene, the patient is given a tablet triturate of calomel and ipecac, each one one hundredth of a grain, every two hours. This combination is very effective with children as well as adults, and gives most gratifying results.

If intestinal antisepsis is desired or indicated by obstinate cases, give sulphocarbolate of zinc, from one quarter of a grain to two grains, every two hours. To this may be added one grain each of lactopeptine and subnitrate of bismuth, that seem to make a more effective remedy than the zinc salt alone.

W. Blair Stewart, M. D.

121 Garden Street, Hoboken, N. J., *October 15, 1891.*

To the Editor of the New York Medical Journal:

Sir: I was much surprised on reading Dr. Norton's letter on the use of arsenite of copper for diarrhœa and its attending symptoms. He says he has used it extensively without any results. I think the trouble is, he has used it too extensively; if he had used it only in cases of acute intestinal trouble, I am sure he would not consider it only a chemical curiosity. I think from my experience with the drug—and that has been considerable—the doctor has used it for all his cases of diarrhœa indiscriminately, as he mentions several diseases with diarrhœa for which he used it. First, in a case of long-standing cirrhosis of the liver, he says he thought it would be just *the* remedy. I am unable to understand why he came to such a conclusion; certainly he did not consider the pathology of cirrhosis of the liver, or he would not have used arsenite of copper. His second case was that of a patient with chronic diarrhœa who was not benefited by long trial of $\frac{1}{100}$ of a grain taken three times a day. I am not surprised at that. His third case was that of a woman with cancer of the face and weak bowels. It appears that the doctor gave the arsenite in this case because she was a believer in homœopathy, and he was anxious to help her by giving tasteless medicine. Fourthly, in attacks of cholera morbus, he says he never saw it relieve the cramps. I am not surprised, as I should not expect it to. Fifthly, after the acute symptoms of cholera infantum had been checked, he says he used it for its tonic effects without any results. I am confident that if the doctor had used it for the acute symptoms he would have had good results. I have had a great deal of experience with arsenite of copper during the last summer, as we have a large tenement population in our city, and during the hot weather the children suffer a great deal from acute intestinal complaints, and it is in those cases that I have had such good results from the arsenite. I have not attempted to use it in chronic cases, with other complications causing the trouble, as I did not believe it would be of any benefit. In fact, the only reason that I have used the remedy is that I believe it to be a powerful *germ-destroyer*, and without any doubt cholera infantum is caused by germs in the intestinal canal. I hope the doctor will give such a valuable remedy another trial next summer, if he has to treat any *acute* intestinal diseases, as, I am sure, the fault lies in his giving it in *all* his cases of diarrhœa.

H. B. Rue, M. D.

Steuben, Me., *October 13, 1891.*

To the Editor of the New York Medical Journal:

Sir: In the Journal of October 10th I read with much interest Dr. Norton's letter on arsenite of copper. Like him, I have faithfully and persistently used it for the past two years, and, while I have not met with utter failure as the doctor has, I have never seen it reach the efficacy of the advertised standard.

Wyeth's tablets have always been used, and never in combination with other diarrhœa mixtures. From my own experience, I should have expected no definite results except in Case V cited by the doctor. In similar cases I have had most happy results, provided I saw the patient within a few hours from the beginning of an attack.

To illustrate, I will give the history of one case, which is a sample of quite a large number of cases occurring in August of the present summer. The master of a vessel left his home about 10 A. M. to go aboard his vessel at the wharf, about two miles distant. When he had gone over about half the distance he was suddenly taken with severe cramps, vomiting, and diarrhœa. He was so severely prostrated that he was obliged to stop at a house on the road. I reached him about noon, and found him with a temperature of 102·5° F., suffering extreme pain, vomiting, and having thin, watery passages from the bowels every few minutes. I dissolved a one one-hundredth grain tablet of arsenite of copper in four ounces of water, and directed a teaspoonful to be given every ten minutes for an hour, then the same dose every hour. I saw the patient again the next morning, and he reported but one operation of the bowels after I had left him on the preceding day, also an almost immediate cessation of pain. It may be said this was a self-limited case, but, after watching a large number of similar cases, this would appear hardly probable.

In children, where it is desired to administer a tasteless remedy, it is invaluable. In children slight drowsiness will be observed in many cases following its administration.

On the whole, it appears to me that, if it is administered in acute attacks and at the beginning of the seizure, good results will be obtained in a large majority of cases. When an attack has been in progress over twelve hours I have had no success with the remedy. As a remedy in the night-sweats of phthisis it is also serviceable.

S. B. Overlook, M. D.

DARLINGTON, IND., *October 13, 1891.*

To the Editor of the New York Medical Journal:

SIR: I have just read Dr. Norton's letter on the use of arsenite of copper in diarrhœa, and am surprised at the results he reports. I have kept no record of cases treated since I commenced using the drug two years ago, and have not given it to any great extent except in cases of dysentery and summer diarrhœas of children, but I do not remember treating a case since its introduction without using it. And in every case the improvement and cure have been almost phenomenal. I consider arsenite of copper one of the most valuable acquisitions to therapeutics we have, especially in the diarrhœas of children and in dysentery.

In the summer complaints of children I usually administer five or six one-tenth-grain tablets of calomel, half an hour apart, and add six to eight tablets of one one-hundredth of a grain of arsenite of copper to half a glass of water, and give a teaspoonful of the mixture every fifteen minutes until six or seven doses are taken, then a teaspoonful after each operation of the bowels.

W. J. OWSLEY, M. D.

Proceedings of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Sixth Annual Meeting, held in Washington, on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

The President, Dr. WILLIAM PEPPER, of Philadelphia, in the Chair.

(*Continued from page 381.*)

The Frequency of the Localization of Phthisis Pulmonalis in the Upper Lobes.—Dr. J. WEST ROOSEVELT, of New York, read a paper with this title. (See page 365.)

Dr. W. H. WELCH, of Baltimore, objected to the theory of infection suggested by the author of the paper, on the ground that hæmorrhagic infarcts of the lungs and other embolic processes, including the tubercular, did not follow the course suggested.

Dr. ROOSEVELT said that the conditions mentioned by Dr. Welch were not parallel to those set forth in the paper. Large emboli, he had stated, would pursue a different course from tubercular emboli. Appearing in greater abundance, the latter would, as the paper had explained, because of their smallness, be scattered generally throughout the lungs.

Dr. A. JACOBI, of New York, wished that investigators would do their work on diseased lungs. The bacilli, he thought, never found a suitable soil except in organs already diseased. Tubercular infection of the lower lobes in children was more common than that of the upper.

Dr. F. SHATTUCK, of Boston, said that the infection of the upper lobes so frequently existing in emphysema seemed evidence that there was some peculiar vulnerability of those parts.

Dr. ROOSEVELT said that the paper was not to be understood as written to set forth a theory by any means proved; the ground taken was tentative and the idea seemed plausible. Whether or not the particular explanation of infection of the upper lobes by tubercular emboli was true, it was a fact that infection of the lungs by bacilli frequently took place through the lymphatic and pulmonary arteries. For this reason we must be on the lookout and guard against such infection. The question of vulnerability or predisposition was not under discussion.

The Remote Results of the Removal of the Ovaries and Falloppian Tubes.—Dr. W. T. LUSK, of New York, opened a discussion of this subject by making a very strong plea for conservatism in operative gynæcology. The removal of diseased ovaries and tubes was followed in very many instances by the relief of local pain; and the removal of pus collections, whether in the tubes or in the ovaries, eliminated a source of danger to life. When performed properly, the dangers of the operation were small and not to be weighed for a moment against the terrors of chronic invalidism. This statement purposely ignored the question as to how far in cases of tubal and ovarian disease laparotomy could be avoided and equally good results be obtained by the healing influence of time and the procedures of minor gynæcology, though, incidentally speaking, the minor gynæcologist was looked upon with a certain amount of contempt by the pelvic surgeon. Still, there was another side to this story; if castration was only followed by the conditions due to the climacteric change, the situation would not be so bad, but this was far from all. As to the favorable results following such operations in cases of mental and moral perversity, even where the appendages were diseased, they were invariably failures. Of course, where pus was present it should be removed by the most expedient means, as this condition endangered life. Cases of swollen tubes and ovaries could be cured without having to resort to operations for unsexing women. There was no doubt that the impression that the sexual functions were abolished after oophorectomy was erroneous. After a thorough study of this aspect of the subject the author had seldom found it altered from what it had originally been in each individual before the operation.

Dr. WHARTON SINKLER, of Philadelphia, said that the importance of inquiry into this subject was very apparent, as operations upon the pelvic organs of women had become so numerous. The thirst for blood was remarkable. Operators knew but little of the real condition of their patients after they were out of sight for a time. As a rule, the cases were never followed up, and of the remote results no one ever knew. As to operations being done for the cure of nervous troubles, the speaker did not subscribe to such procedures. He had gone fully into the subject from a surgical standpoint, and he was unable to report any cures. If such operations were surgically necessary, as they undoubtedly were sometimes, he thought that if they were done on young subjects the sexual instinct might become altered, but, if done on mature women, it did not seem to be disturbed in the same proportion. There was an impression that oophorectomy produced obesity and grossness. The author thought that this view was erroneous, because, as a rule, such patients came for operation pale and emaciated, but with the good attention and prompt recovery from the operation they gained flesh, and the gain was mistaken for a pathological condition. One of the results following the operation was seen in patients becoming nervous and irritable, due no doubt to cerebral hyperæmia. In many instances insanity had been known to follow oophorectomy. Acute mania had been known to follow other operations as well. Several gynæcologists had reported cases where mental disturbances had occurred, but the question was whether the mental condition was due to the operation or to the previous long-continued irritation consequent on the pelvic disease. The consensus of opinion in regard to the question of sexual appetite was that it was not appreciably changed. In the histories of the author's cases, in a large proportion there had been no change noted. It was evident from this that the sexual appetite was not controlled through the ovaries, but from the centers in the spinal cord. The immediate results of an operation were frequently relief from pain and from some of the distressing symptoms, but this improvement was eventually succeeded by a retrogression in the general condition, with a return of all the aches and pains, and it not infrequently happened that when they returned the condition was exaggerated. Some authors had reported cures, in cases of periodical mania, by castration. The speaker thought that the operation was entirely uncalled for in cases of swollen tubes and ovaries, for there were other means of dealing with these cases which offered hopes of success. In conclusion, he said that to operate where the organs were distinctly diseased and where the diagnosis was positive was good practice, but that to castrate for the cure of neuroses or hysterical conditions of any degree was highly deplorable.

Dr. J. J. Putnam, of Boston, had gone into this subject pretty thoroughly with the surgeons of Boston, and he had come to the conclusion that as an operation for the removal of diseased ovaries and tubes no exception could be taken to it, but as a means of curing neurasthenic conditions it was more to be dreaded than the disease. He was sure that such cases could be reached, and that some way would have to be found for dealing with individual cases. As to the castration of women, it should be remembered that child-bearing was not the only sacred function of woman, and, for her moral and mental sake, oophorectomy should not be rushed into indiscriminately. He gave the histories of several cases surgically treated, in all of which there had been no real surgical reason for the operation, only adhesions, pain, and so forth, but with marked nervous tendencies. Of course, nothing had been gained by the procedure; in the very nervous patients maniacal symptoms came on, and in all the pain remained or returned in a shorter or longer period after the oophorectomy. He was able to report a cure of the morphine habit by removal of the uterine appendages. He said that such an operation did not act simply by removal of the organs, but by the premature induction of the menopause. The result of castration in a male of very neurotic tendencies and violent sexual instinct had been good, and for years the patient was comparatively comfortable, but there was subsequent relapse.

Dr. S. Weir Mitchell, of Philadelphia, asked, if the statistics from such unimpeachable sources as those given by the gentleman who had preceded him were so bad in regard to laparotomies, what they must be in the hands of reckless operators, of which the name was legion. If these could be ascertained, then would the real results of the wholesale unsexing of women be known. In every branch of medicine the new remedies had to have their turn. He recalled the time when the bromides began to be used, and the great harm that had been done with the too indiscriminate use of them. So it was with this mania for operating; it would have its day. One of the greatest mistakes made by operators was the hasty way in which they decided that a given case was a fit subject for the knife, the little loss of time between seeing the patient for the first time and performing the operation. That patients were not treated long enough, given enough chance to get well without an operation, there was no doubt. Again, as to passing judgment upon such remote results as would be likely to follow castration, it was far too soon for positive statements to be made in regard to it. If castration was performed upon a young woman of eighteen, in fifteen or twenty years hence it would be seen what the results had been in her case. In all the speaker's years of practice he had had only fifteen cases in which he had advised the operation, and out of this number there had been no deaths. He said that no case of this importance, requiring laparotomy, should be attempted without consultation and careful consideration. It was not unusual for surgeons to decide in such cases, call in their assistants, and operate. That there should be some means of preventing this condition of things there was no question.

Dr. W. T. Gairdner, of Glasgow, did not think that there was as much reckless surgery as Dr. Mitchell's remarks would lead one to suppose. As to conservatism in gynæcology, he entirely agreed with the views of Dr. Lusk.

Dr. C. C. Lee, of New York, said that eight or ten years ago he had been struck with the fact that surgeons did not follow up and know the ultimate results in their cases. Since that time he had made tabulated records, beginning with a hundred and twenty cases of laparotomies for various diseases, and, since collecting eight hundred more, he was able to deduce the fact and make the statement that he could not report a single instance of cure or of permanent benefit resulting from the operation. This statement, of course, referred to those cases where there was no structural change in the organs, and where the operation had been done for pain, adhesions, enlargements, and neuroses. Where there was undoubted disease, and this could almost always be determined, the operation was indicated and the results were generally satisfactory, but to operate in a neurotic case in the hope of cure was criminal.

Nerve Stretching in Inveterate Cases of Trigeminal Neuralgia.—Dr. James Stewart, of Montreal, read a paper with this title. He confined his remarks to those cases which were attended by spasm of the facial muscles and those where the neuralgic paroxysms came on with great suddenness and lasted for a few seconds, and which persisted for years in spite of all the ordinary remedies, both internal and external. In the last two years the author had had three cases of severe inveterate neuralgia come under his care, which he had treated by nerve stretching with very satisfactory results. Statistics showed that the results from neurectomy were better than those from nerve stretching, but it must be remembered that neurectomy was an operation not devoid of danger. Many deaths had been reported from this operation, the mode of operating probably accounting for the unfavorable results, but, as nerve stretching was a mild operation as compared with neurectomy, it was to be preferred. Another important reason for preferring nerve stretching was that, if the preliminary operation failed, it might be repeated several times if necessary, while, if an extensive neurectomy was first performed, no operation except the grave one of ligating the common carotid was left. As the great majority of cases of epileptoid neuralgia were due to central mischief, it followed that after the failure of an extensive neurectomy neither nerve stretching nor a further neurectomy was possible. From his present experience with nerve stretching in inveterate neuralgia, he thought he was safe in coming to the following conclusions: 1. Nerve stretching gave either complete or great relief in the majority of cases. 2. The relief was not permanent in more than five per cent. of cases. 3. If the pain should return, the operation could be repeated, even several times, before resorting to a neurectomy or ligation of the common carotid artery. 4. If the pain was not strictly and always limited to one branch of the nerve, several branches should be stretched. 5. As relief did not always immediately follow the stretching, a second operation should not be undertaken until some time had elapsed.

Book Notices.

A Text-book of Practical Therapeutics, with Especial Reference to the Application of Remedies to Disease, and their Employment upon a Rational Basis. By Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Second edition, revised and enlarged. Philadelphia: Lea Brothers & Co., 1891.

THIS work, as noticed in our former review, consists of a chapter upon General Therapeutical Considerations, an Alphabetical List of Drugs, a chapter on Remedial Measures other than Drugs, and an Alphabetical List of Diseases with the Remedial Measures applicable to each.

The alphabetical arrangement has one advantage in the facility with which references can be made, but with the excellent index supplied such an arrangement is unnecessary, and it sacrifices those powerful aids to memory-association and contrast that are furnished in a classification of drugs according to their physiological actions. Take, for example, the two drugs aconite and veratrum, so similar in their effects, but differing somewhat in their methods of action. How much more forcibly they present themselves to the student's mind when studied together than when separated by some three hundred pages upon other subjects! The greatest advance in modern therapeutics consists in the application of remedial measures to disease according to our knowledge of the action of those remedies upon the physical economy. Given a condition of the human system, and if possible the cause, and knowing the chemical and physiological action of our remedial agents, our therapeutics becomes a matter of reasoning; we proceed upon a basis of rational medication. But given a name for a certain set of symptoms, and having learned that certain drugs are used in that disease, our treatment becomes a process of empiricism founded upon memory alone. The author, while justly proclaiming the great advances made in therapeutics during the last two decades, has in our judgment taken a backward step in adopting the old dispensatory plan of an alphabetical list of drugs. The student who reads in the first chapter of this book that cardiac stimulants are contra-indicated in the presence of arterial excitement, and that cardiac sedatives are contra-indicated in arterial depression, will naturally ask himself, What are the cardiac stimulants? What are the cardiac sedatives? In vain will he search for a classification that will answer his question, and many weary hours will he spend gathering together the remedies belonging to these classes. And yet such a classification is indispensable to his thorough appreciation of the rules laid down.

The paragraph upon the Combination of Drugs for Joint Effect is worthy of special mention, as indeed is all the section upon General Therapeutical Considerations, but it only emphasizes what we have already said upon the classification, for no man can successfully combine drugs without a thorough knowledge of their similarities in physiological action.

However we may differ with the author in regard to his arrangement, we are glad to acknowledge the excellence of the work done upon his own plan. In the section upon drugs he has not attempted to give the methods by which his conclusions have been reached, but has stated in brief outline the physiological action of the more important drugs as each appears in the list. Some of the older drugs he has slighted somewhat perhaps, for example, aconite, but this is more than made up for in the conscientious attention given to the more recent additions to our pharmacopœia.

In reviewing the articles upon the modern antipyretics the peculiar advantages and dangers of each are so clearly brought out that one can not suppress the wish that they had been grouped in parallel columns, where we might compare them face to face. Some drugs have been omitted which to us seem as important as many that have been introduced, examples being diuretin and acetophenone, but perhaps our patients would never suffer by the loss of them.

The best possible excuse for the second edition of a book is that the first edition has been rapidly and legitimately exhausted. Such has certainly been the case with the work before us, and we can readily see the want it has filled for our profession. The large majority of our brethren have never studied the physiological action of drugs, and to them a list of diseases with remedies applied by those who are familiar with these studies is a great desideratum.

This last division, this you-press-the-diagnostic-button-and-we-do the-rest chapter, has caught the heart of many of our profession, and the book shows them the way they long have sought; it meets a "long-felt want," and will bring praise and rich remuneration to its gifted author.

Du Paludisme et de son hématozoaire. Par A. LAVERAN, médecin principal, Professeur à l'École du Val-de-Grace, etc. Quatre planches en couleur et deux planches photographiques. Paris: G. Masson, 1891.

IN the preface to this excellent work the author says that in general medical terminology leaves much to be desired; and, as there are more than a score of different terms for the morbid state peculiar to paludal regions, the word paludism, proposed by Professor Verneuil, may be selected as most appropriately expressive of the principal origin of these fevers and their allied conditions.

That this condition was due to a micro-organism was surmised from an early date in the history of medicine. Vitruvius, Varro, and Columella, in their writings, and Lancisi and Rasori at a later date, referred to the probability that an animalcule, engendered by the putrefaction in a marsh, caused paludal fevers. Indeed, so popular was the idea in Italy that among the people the fever-producing animalcules were known as the *serafici*, and it is but a few decades since J. K. Mitchell, Mühry, W. A. Hammond, J. Lemaire, Massy, of Ceylon, and Cunningham, of Calcutta, published their theories that the floating micro-organism in the air of marshy regions caused the symptoms of paludism.

The announcement in 1881, by the author of this volume, of the discovery in the blood of persons suffering with paludal fever of spherical, crescentic, and flagellated organisms that were probably pathognomonic, received immediate attention, and many observers again employed their microscopes in order to confirm or refute the statement. Annually new observers, studying the subject in various parts of the world, attested the correctness of Laveran's discovery; and it is generally accepted that the presence of any of the parasitical forms described by Laveran in the blood of a patient is conclusive evidence of the existence of paludism. And, as a rule, the converse has been, notably in America, demonstrated to be true that, if in a case of supposed paludal fever these organisms are not found in the blood, the fever is produced by other causes.

In this volume the author again describes the hæmatozoa and the different aspects under which they are present. It is best to examine the blood for the organism just before or at the commencement of the febrile paroxysm. The spherical bodies are most frequently present, the crescentic bodies are rarer, and the flagellated organisms are found in a little over twenty per cent. of the cases.

There seems to exist some difference of opinion regarding the classification of the parasite, Feletti and Grassi classing it among the *Rhizopoda*, Antolisei among the *Monadines* (Cicukowski), and Balbiani among the *Sporozoaria*.

The various influences affecting the production of paludism are considered, there is a chapter on the mode of action of the various remedies employed, and detailed observations on some forty-seven cases of paludal fever are given. The illustrations are excellent. It is regrettable that such a work as this has no index.

The volume will undoubtedly find the large audience among American practitioners that its merits deserve.

Minor Surgery and Bandaging, including the Treatment of Fractures and Dislocations, Tracheotomy, Intubation of the Larynx, Ligations of Arteries, and Amputations. By HENRY R. WHARTON, M. D., Demonstrator of Surgery and Lecturer on Surgical Diseases of Children in the University of Pennsylvania, etc. With Four Hundred and Three Illustrations. Philadelphia: Lea Brothers & Co., 1891. [Price, $3.]

IT has been the aim of the author to present in this volume a description of the bandages, surgical dressings, and instruments that are in general use in the surgical practice of to-day, with a description of the methods of their application and the purposes for which they are employed. To assist the text a number of woodcuts have been introduced; some of them are familiar acquaintances, but many have been prepared for this volume.

After describing the different varieties of bandages, those for the head and neck, the upper extremity, the trunk, and the lower extremity are considered, as well as the subject of special bandages and fixed dressings.

Under minor surgery the theory of asepsis and antisepsis is briefly touched upon, with the description of the methods and dressings employed in aseptic operations and the manner of conducting the latter. There are sections on anæsthetics, trusses, the use of catheters and bougies, sutures and ligatures, the treatment of hæmorrhage and of abscesses, on tracheotomy, and on intubation of the larynx. The text on the treatment of fractures and dislocations, ligation of arteries, and amputations follows the generally accepted authorities on these subjects.

The plan of the work is an excellent one, and its freedom from useless material and its inclusion of much matter that is not accessible in any similar volume make it a very desirable book for students.

BOOKS, ETC., RECEIVED.

The Practice of Hypnotic Suggestion: being an Elementary Handbook for the Use of the Medical Profession. By George C. Kingsbury, M. A., M. D. (University of Dublin). Bristol: John Wright & Co., 1891. Pp. viii–206.

The Neuroses of Development: being the Morison Lectures for 1890. By T. S. Clouston, M. D., F. R. C. P. E., Physician-superintendent, Royal Edinburgh Asylum for the Insane, etc. With Illustrations. Edinburgh: Oliver & Boyd, 1891. Pp. viii–138.

Evidences of the Communicability of Consumption. By G. A. Heron, M. D. (Glas.), Fellow of the Royal College of Physicians of London, etc. London: Longmans, Green, & Co., 1890. Pp. x–163. [Price, $2.75.]

A Sketch of Surgical History (after Hecker). By John Hund, M. D. Chicago: Ed. Ackerman & Co., 1891. Pp. 38.

Volume XXV. Transactions of the State Medical Society of Wisconsin. For the Year 1891. Constitution and By-laws and List of Members.

Common Sense in Medicine. By S. C. Gordon, M. D., Portland, Me. [Reprinted from the *Boston Medical and Surgical Journal.*]

The Scientific Rationale of Modern Wound Treatment. By Henry O. Marcy, M. D., LL. D., Boston, Mass. [Reprinted from the *Journal of the American Medical Association.*]

Artificial Anæsthesia and Anæsthetics. By DeForest Willard, R. M., M. D., Ph. D., and Lewis Adler, Jr., M. D. Detroit: George S. Davis, 1891. Pp. vi–144. [Price, 25 cents.] [The Physician's Leisure Library.]

The Care of the Bladder before and after Labor. By Henry C. Coe, M. D. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children.*]

Hernia in Infancy, and its Treatment. By W. B. DeGarmo, M. D. [Reprinted from the *Archives of Pædiatrics.*]

Hypnotism *versus* Morphinism. By William Lee Howard, M. D., Baltimore, Md. [Reprinted from the *Baltimore Medical and Surgical Record.*]

Miscellany.

The Lancet on American versus European Medical Education.—The *Lancet* for October 3d contains the following leading article:

We have more than once directed the attention of our readers to the state of medical education and of the medical colleges in the United States, and to the regulations of the schools and licensing boards of the profession. It requires but a slight acquaintance with the members of the profession in America who visit us, and with American literature and journalism, to see that there must be many sources of good medical education in the States. We are apt perhaps to be somewhat prejudiced by the newspaper accounts which reach us of fraudulent colleges and bogus degrees, and the facilities for their existence and prosperity in the very constitution and law of the States are unfortunately too great. If we refer to them, it is in no unfriendly spirit to our brethren in America. On the contrary, our exposure of them is supplementary to their own efforts in that direction. There is in the States, as we have frequently pointed out, a wide and earnest attempt to expose and remove the defects of their system and to lift the whole standard of medical education to a European level.

We have before us a very interesting paper by Samuel O. L. Potter, A. M., M. D. (Jeff.), Professor of the Principles and Practice of Medicine in the Cooper College of San Francisco, read before the forty-first annual meeting of the American Medical Association. The paper, which is headed American *versus* European Medical Education, after comparing American medical college work with that of European medical schools, seems to be an honest endeavor to demonstrate that the result is by no means so unfavorable to the American schools as is generally assumed. Dr. Potter is very indignant at what he calls the feeling of contempt for American medical education and persons, which, he says, so "pervades the European that, polite as he is, he is never able wholly to disguise it." He is especially angry with the action of the authorities of the medical school at Berlin in denying to American graduates studying there the right to the letters M. D. after their names. And he suggests as a punishment that American students should withdraw from Germany, and for post-graduate study visit London or Edinburgh, where he thinks they will benefit more directly than in Berlin or Vienna. But he goes further and suggests retaliatory legislation refusing recognition to foreign graduates until the American diplomas are recognized.

We sympathize with Dr. Potter and all other earnest colleagues of his who are doing their best to put medical education on a proper footing throughout the States and who are conscious of the disrespect which, meant for the worst American diplomas, is very apt to affect the best of them. But we venture to suggest that he will attain his object sooner and better represent the just dignity of medical teaching authorities in the United States by a little fuller admission of the difference between the process of medical education in the States and in European countries, and a little longer perseverance in the efforts which he and the representatives of other American schools are making to lessen that difference, which is practically admitted by himself. It is not only in details, but in the absence of a central controlling power in the States. In European countries the state acts from a center and as a whole. In England, in addition to the central Legislature unifying medical law for England, Ireland, and Scotland, there is the General Medical Council, controlling and supervising all the medical examining boards. Dr. Potter speaks kindly of England, and naturally looks to her for recognition. We cordially reciprocate the sentiment that the great English-speaking nations should in this, as in all matters, honor and respect each other. But he will take it well from us when we confess that he has not established to our satisfaction that the American is equal to the European curriculum.

In respect of the *time* required for medical education in England and the States, respectively, we can not follow him when he tells us that, inasmuch as the conjoint medical colleges of England allow a *year and a half* of the four years' time they require to be spent in receiving instruction as a pupil of a legally qualified practitioner, thus leaving only two years and a half for school and hospital work, they do not so favorably differ from the American colleges, which always require a year's pupilage previously to their two or three years' college work. We do not find such a permission in our reading of the regulations of the English colleges. They specifically require "that not less than three winter and two summer sessions shall have been passed at one or more of the medical schools recognized by the two colleges." We know as a matter of fact that men can only enter the profession after a preliminary examination, and that from whatever board, university, or college students in England take their qualification, they have to work four years for it in consecutive sessions, and to pass very trying examinations before they succeed. Moreover, we would remind Dr. Potter that the General Medical Council has this year decided that the term of medical education must extend over *five* years, and has not sanctioned the use of more than six months of this time in the way of pupilage. We have said that the exposure of the defects and faults of American medical schools and boards is the work of American physicians and surgeons who are jealous of the honor of their profession, and who in many instances, as Dr. Potter says of the president and founder of the Cooper Medical College of San Francisco, have made great sacrifices for it. He avers "that each member of his college gives ten hours a week to college work, exclusive of the hours spent in preparation, and not one draws a cent from its treasury." This is very noble, but it has no bearing on those scores of colleges which swarm in the States, whose diplomas are given after two or three years' study, and with little or no preliminary education. If any one doubts the evil, let him invest in one of the most instructive medical publications of the world, The Report on Medical Education of the Illinois Board of Health—one of the States which is blessed with a Legislature that has given, as all States should give, to a medical board the power of judging diplomas and refusing recognition to unworthy ones. This report abounds in information as to the conditions of medical education in the United States and Canada, and its able compiler (Dr. Rauch) can have no interest in misrepresenting the facts. He points out that in the seven years reported on there has been very great improvement. There has been a steady rise in the number of colleges requiring proofs of preliminary education, and of colleges requiring a more extended period of medical education. There is a yearly decrease in the percentage of graduation to matriculation in the United States. Another feature of the American case is the existence of examining and licensing bodies which do not give instruction. These are all marks of an improvement which is bound to go on as public and professional opinion on the subject is strengthened. The effect of the Illinois State Board raising the minimum requirement for diplomas to be recognized in that important State was to diminish considerably the number of students and of graduates. It is inevitable that when men can get diplomas on easy terms elsewhere they will not repair willingly to those boards which exact higher terms. The great hindrances to progress in the States are the inequality of requirement and the number of schools and degree-granting bodies without central law or control. There are still 135 medical colleges of all kinds in the United States. Each State has its own medical bodies, and the powers of these vary in each State. In some, as in Illinois, there is an act of the State empowering a medical board to grant medical qualifications. In others there is no law on the subject. In a great many States diplomas are merely registered in a county clerk's office. In others bodies seem to form and to dissolve again or to merge into other bodies with functions of a teaching or diploma-granting kind in a most remarkable way. One has only to study the history of the schools even of a leading State to see how much too easy it is for schools to be formed. In the State of Pennsylvania, for example, where the medical faculty dates back to Franklin's time, and was chartered mainly by his influence, sixteen schools of various kinds could until lately be counted. Nine of these fortunately are extinct, some having been guilty of fraud of the worst kind. These are the evils incidental to a system of government by separate States. We rejoice at the efforts made to mitigate and remove them, and wish such endeavors all success. But it is obvious that such a loose system and one so open to abuse exists nowhere in Europe.

The late Dr. Fordyce Barker.—The *Glasgow Medical Journal* for August says:

We have received from New York the following biographical sketch of the late Dr. Fordyce Barker, who was one of the honored guests of the British Medical Association in Glasgow in 1888, and whose personal character endeared him to many friends here and elsewhere, while the University of Glasgow selected him among the numerous foreign guests for the honorary distinction of LL. D.:

Fordyce Barker, M. D., LL. D., was born at Wilton, Me., May 2, 1818. His father, John Barker, M. D., was much respected, and his mother charmed by her beauty and graces. He graduated at Bowdoin College, Brunswick, Me., in 1837, in a class that gave other noted men to the services and reputation of their country. He graduated at the Bowdoin Medical School in 1841, after following the hospitals in Boston, Professor Henry J. Bowditch being his preceptor. Having a tendency to pulmonary affections, he advised him to use much care in the selection of his future home. Finding that Norwich, Conn., met this requisition, he located there in the summer of 1841. His talent was soon recognized; and, from being the youngest, he rivaled the oldest physicians in the place. He married on September 14, 1843, at Harrisburg, Pa., Miss Elizabeth Lee Dwight, of Springfield, Mass., and continued his practice at Norwich.

Dr. Bowditch had expressed a wish that he should go to Paris and study for a French degree. In 1844 the way opened for its accomplishment. Accordingly, on October 1, 1844, he set sail with his young wife, from the port of New York, in the good ship St. Nicholas, of 900 tons burden, commanded by Captain Pall, and bound for Havre, France. His first quarters in Paris were the Hôtel de Hollande, rue de la Paix. During the winter of 1844-'45 he followed the hospitals from the early morning hours, and attended lectures, passing most of his evenings in study, in preparation for the next day. These studies were only interrupted by a severe attack of varioloid early in the season. A married medical student was an amusing and surprising personage to his *confrères*. He passed June and July in travel, intending to remain in Paris until October; but the severe illness of a loved relative obliged his return in August. His diploma was afterward sent to him. Among his friends of this date—friendships ending only with their lives—were Baron Dubois, Chomel, Trousseau, Sir Joseph Oliffe, and others.

Returning to Norwich, he resumed practice there in September, 1845, with brilliant success, and was soon known throughout the State. He was elected professor of midwifery in Bowdoin Medical School, and lectured there in the spring of 1846 at twenty-seven years of age. But he filled the chair only one year, finding the interruption to his practice disadvantageous.

In May, 1848, he made the annual address as president before the Connecticut Medical Society, which was much noticed.

In 1848 or 1849 he was visited by Professor Chandler R. Gilman, of the College of Physicians and Surgeons, who, with Professor Willard Parker, wished his removal to New York.

Subsequent events led to his locating in that city in March, 1850, where his remaining life-work was accomplished. He was one of the incorporators of the New York Medical College. Later he served thirty-five years on the medical board of Bellevue Hospital, and the Hon. William M. Evarts is the only survivor of the board of governors who appointed him. This and his membership in the faculty of Bellevue Hospital Medical College ended only with his life.

He was also the recipient of many honors. In 1878 he was elected president of the New York Academy of Medicine, and held the position until 1885—three terms. On the 20th of June, 1878, Dr. Fordyce Barker received the honorary degree of LL. D. from Columbia College, New York, at its commencement, by President Barnard for the trustees. On the 17th of April, 1884, the honorary degree of LL. D. was again conferred upon him by the University of Edinburgh, at its tercentenary celebration, by the principal. In June, 1887, he received the same honor from his alma mater, Bowdoin College, of Brunswick, Me., where the honorary degree of LL. D. was conferred, at the fiftieth anniversary of the Class of 1837, by President Hyde. On Friday, the 10th of August, 1888, the degree of LL. D., *honoris causa*, was conferred upon him by the University of Glasgow, in the Bute Hall, at the meeting of the British Medical Association in that city, he being capped by the Very Rev. Principal Caird, vice-chancellor of the University. A fifth honorary doctorate was offered by the University of Bologna, Italy, at its octocentenary celebration, but he could not attend.

His judicial mind and general culture made him much sought after in cases of legal difficulty; and, during the celebrated Beecher trial, several lawyers' conferences were held in his library at 85 Madison Avenue. It is unnecessary to add that his views were in Mr. Beecher's favor. When the horror of the murder of President Garfield on June 18, 1881, was absorbing the attention of the country, he was asked to testify in the Guiteau case. This he positively refused to do. Subsequently, on receipt of a personal request from the President of the United States, he consented to give testimony as an expert; but never visited Guiteau. It was said that his calmly delivered opinion had much influence with the jury, and upon the charge of the attorney-general. He was often retained by leading lawyers.

His medical friends in the Old World were many. Among them may be named Professor Sir James Y. Simpson and his nephew, the present Professor Simpson, of Edinburgh; Professor Gairdner, of the University of Glasgow; Sir Charles Locock, Sir Henry Thompson, Sir Spencer Wells, Sir James Paget, Sir William Gull. Dr. Priestley, Dr. Ord, Dr. Barnes, and Dr. Matthews Duncan, of London; Dr. Ball, Dr. Apostoli, and Dr. Herbert, of Paris; Professor Virchow, of Berlin; Dr. Tamburini, of Milan, Italy; Dr. Grant Bey, of Cairo, Egypt, and many others.

In 1881 he was Vice-President of the International Medical Congress at its London meeting.

He was also a scholar in general literature, and his society was much sought. Above all, he carried his Christianity into his daily life. Its painless close, at the end of his long, useful, and honorable career, was one of the blessings awarded him from above, because of his frequent and tender ministries to others in their hours of suffering. It closed here (24 East Thirty-eighth Street, New York city) on May 30, 1891. His wife and only son survive him.

Disease of the Vermiform Appendix was the subject of a noteworthy discussion, opened by Dr. Joseph Price, at a special meeting of the Philadelphia County Medical Society, held on September 28th.

Dr. Price read a report of cases of ecphyaditis, seven in number, and gave his views as to the pathology and treatment of appendicular inflammation and its various consequences.

Dr. W. W. Keen reported four cases, one of which he narrated as follows:

Mrs. F., American, aged thirty years, was first seen at 11.30 P. M., June 27, 1891, with Dr. Seitz. She had married at fifteen, and has had four children, the last three years ago. She has been perfectly regular, the last sickness coming on a week too early, ten days ago. A week ago she was suddenly seized with violent pain just below the right border of the ribs. A day or two later one of her children struck her accidentally over the same spot, producing intense pain. Five days ago she was seized with an aggravation of the pains, and was in such a condition of collapse that Dr. Seitz feared she would die. Her temperature was below 97°. Active stimulation soon relieved this, but the pain continued almost as severe as before. Another attack of collapse today, with cold extremities up to the knees and elbows, induced Dr. Seitz to call me in consultation. I found a slender, delicate-looking woman, with the right leg drawn up and the right side of the abdomen excessively tender, with the muscular wall of the belly very tense. The slightest touch on the entire right side of the abdomen produced the most severe pain. On the left side moderate pressure was pretty well borne. The pain was most severe just below the border of the liver, diminishing gradually toward the right iliac fossa. The uterus and ovaries by vaginal touch were free from pain and swelling.

At the consultation it was decided to give her hypodermics of morphine, with brandy and milk, and in the morning, if she was not better, to do an exploratory laparotomy.

June 28th, 11 A. M.—The pain continued as bad as before, with the extremities cold and pulse irregular—92 to the minute—respiration 24, temperature 97·4°. An exploratory laparotomy was done, the incision being at the border of the right rectus. The diagnosis had been that of appendicitis or some indeterminate trouble with the liver or gall-bladder. The kidney did not seem to be tender. On opening the abdomen, the lower border of the liver was seen, and was evidently somewhat reddened and fleshy-looking. This was bound to the colon by recent adhesions, and the peritonæum of the corresponding belly-wall was deeply injected. The gall-bladder was normal, and there was no evidence of trouble behind the colon or with the kidney. No abscess or other cause for the inflammation could be detected. The right iliac region and caput coli showed no disease, but the appendix was not found. There was a considerable accumulation of serum in the right flank. The intestines were normal, also the uterus and the right ovary. In the left ovary was a small cyst. The abdomen was well flushed with warm water, and reluctantly closed after inserting a drainage-tube in the affected area. I felt assured that I had not discovered the reason for her dangerous illness.

4 P. M.—She was much more comfortable than before the operation, and her extremities, though not warm, were much less cold.

29th.—She passed a poor night, with constant bilious vomiting. Temperature 97·4°, extremities again cold. We ordered one quarter of a grain of cocaine every hour and a full enema with glycerin, followed, if need be, by an enema of two drachms of sulphate of magnesium every two hours.

6 P. M.—Temperature 98·2°, pulse 92, respiration 24. Has had four large stools and feels much more comfortable. The belly is not nearly so tender. The vomiting ceased with the first dose of cocaine, and she feels hungry. A moderate amount of bloody serum had escaped by the tube, which was now removed. A considerable amount of apparently purulent leucorrhœal discharge had occurred during the day.

July 2d.—From the time of the last note she gradually sank, with symptoms of collapse, subnormal temperature, and constant vomiting, until she died, at 9 P. M. on the 30th.

The post-mortem, thirteen hours after death, disclosed the fact that her death was caused by a perforative appendicitis. The appendix was three inches long and lay directly behind the cæcum and colon, being agglutinated to them, with no peritoneal covering, but lying between the two layers of the mesocolon. Its tip was perforated. Less than two drachms of pus mixed with a small amount of fæcal matter were found in the abscess. The wound itself and the peritoneal cavity were entirely aseptic.

I record this case, said Dr. Keen, especially as a lesson in diagnosis and a warning in treatment. When first called to see it, the history, the collapse, the rigidity of the right side of the belly, and the flexure of the right leg all betokened an appendicitis. And yet the right iliac fossa was free from tenderness, free from tumor, free from œdema, free from pain. There was slight pain and tenderness all over the right half of the belly, but the most painful spot was far away from McBurney's point and was just under the border of the liver and about an inch inside the line of the anterior superior spine. The abdomen at this point over an area of 2·5 to 3 inches was so exquisitely tender that no satisfactory examination could be made. Although appendicitis was in my mind as a first thought, the position of the tenderness suggested possibly rupture of the gall-bladder from gall-stones or a renal calculus as the probable cause. When the abdomen was opened the localized patch of peritonitis was external to the attachments of the mesocolon and showed no indication of any trouble back of the colon as its possible cause. In spite of this, however, I examined three several times with the most minute care the entire region of the colon from the cæcum to the hepatic flexure, first on its outer side, then on its inner side, and then by bimanual examination from side to side and by palpation from before backward, and could detect no hardness or other evidence of any abscess.

That no larger an amount of pus should have formed after an illness lasting eight days is very unusual, and while I deeply regret not having discovered the abscess, I can not but console myself with the thought that it was not for the want of a careful and thorough search, but by reason of the unusual conditions and the small size of the abscess. Whether in the absence of all physical signs of such an abscess it would have been my duty to dissect up the colon in order to examine the retro-colic tissues and appendix, or to have torn through the outer layer of the mesocolon, is a question I have much debated. Viewing now the facts, I greatly regret not having done so, and I report the case especially as a guide and warning to other surgeons who may meet with similar cases.

Dr. Thomas S. K. Morton read the following paper on The Operative Treatment of Appendicitis: Since being requested by the directors a few days since to open the discussion of the Operative Treatment of Appendicitis, I have taken a glance through the literature of the subject in order to offer, as it were, a consensus of opinion regarding the present status of the subject, as well as to draw conclusions from such personal experience as has fallen to my lot in this direction. Now I find myself embarrassed by the necessity of limiting my remarks to the few moments which are at my disposal and to crowd into them even bare mention of the most salient facts. Hence much must be entirely omitted and other points given scant attention.

The discussion being limited to operative treatment, pathology and diagnosis—perhaps the most interesting branches of the subject even to surgeons—are not to be touched upon except incidentally. But I can not refrain, in passing, from saying that as the ratio of appendicular to cæcal inflammatory affections is probably 100 to 1, hence that *differential* diagnosis in diseases of this region, which is usually impossible prior to surgical interference, is neither necessary nor important, as operative procedures up to the point of establishing diagnosis are identical for all affections of the cæcal region. Again, I would condemn without qualification needle explorations as an aid to diagnosis. The procedure is inherently dangerous, and will furnish no indication that can not otherwise be obtained.

The number of cases of appendicular disease discovered when we are upon the outlook for them is astonishing. A large proportion of peritonitis cases in males, and especially in children, arise from this disorder; and in all cases presenting abdominal pain, whether acute, chronic, or recurring, no matter where referred, we should think of and examine for possible appendicitis. I have come to be very skeptical of such conditions as are described as abdominal "cramps," "colic," etc., particularly when of frequent recurrence. Curious as it may appear, yet it is a fact that the great majority of the profession are only now beginning to recognize cases of appendicitis and its consequences as such. Formerly the affection was almost universally diagnosed as anything else except itself. But just in proportion as the disease continues to be more certainly recognized, so surgeons are more early operating upon cases which demand interference, and, as a consequence, the mortality from the disease, as well as from the operation, is very rapidly on the decline.

Keen has said that "the first indication in appendicitis is to call a surgeon," that the physician, who almost invariably first sees the case, and the surgeon may together watch the case, and if operation becomes necessary, interference may be prompt and well timed; while the surgeon will have the great advantage of being already familiar with the case and not disposed to delay the operation that he may acquire such familiarity. Again, Mynter has well said that "we are utterly unable to judge correctly from symptoms alone of the extent and severity of appendix lesions, and for this reason alone abdominal section is and must be the safest method of treatment" in many cases.

When shall we operate? Judging from the cases that I have observed and from the writings of others, I would formulate as a good working rule: To operate not later than the third day of disease, if the patient up to that time has failed to markedly improve under rest, restricted diet, purgation, and topical applications. Especially should this rule be adhered to in cases where we have failed to move the bowels—these are apt to be the fatal ones. Further than this, we should invariably operate as soon as the presence of pus is assured; when peritonitis is developing or spreading; when signs of sudden rupture of an abscess into the peritoneal cavity appear; and where septicæmia from septic absorption is taking place. In children operation must often be performed earlier than in adults, as with them the malady is more speedy in development, more fatal in tendency, and shows a greater proclivity to involve the general peritonæum.

But let me emphasize the point that *pain* is not a reliable symptom (especially when opiates have been administered) from which to judge as to whether the patient is better or worse; most weight should be given to the strength, temperature, and condition of the bowels, stomach, and general abdomen.

Mr. Treves urges that operation shall not be done until the fifth sixth, or later day. But from my reading and experience I think this is too late. He argues thus because few deaths occur before the fourth or sixth day. These patients, however, really begin to die on the third, fourth, or fifth day, although death may not actually take place before the sixth or later day, when the possibility of benefit from operation has passed. If the case is progressing well and operation is being postponed, it should be watched and observed frequently and most carefully, for we can not predict at what moment an appendix abscess may perforate into the peritonæum or other dangerous complication arise that will instantly demand operation.

If the patient is operated upon early, the chances of recovery, as a rule, are exceedingly good. The mortality of appendicitis during the first forty-eight hours is almost *nil*, and the operative death-rate at that time is equally low. Later both rates increase, but the former much more rapidly than the latter. The patient, in this disease, is generally strong and well up to the moment of seizure, at which time the danger of operation *per se* is at the minimum. Such mortality as results in operations for appendicitis has been mainly incident to undue delay. When physicians and surgeons generally have learned definitely to recognize such cases as are operative at a time before the vital forces have been too much sapped or dangerous complications have arisen, then will the mortality rate of both disease and operation remain steadily at a low figure.

Then, again, the local conditions from an operative standpoint are much less serious in the early stages. We have at first simply a swollen appendix with infiltration and perhaps a few adhesions. We then do not have to deal with fœtid abscess, foul surroundings, and sloughing tissues which may have given rise to intestinal gangrene and other complications, as well as to the impossibility of securing primary union of the wound. Hernia is more common as a sequel in cases where the operation is performed late and where the surroundings are gangrenous, and we can only secure healing by secondary intent.

The cry of every writer is for earlier operations. I have found no surgeon who regrets having operated early, but almost all mourn cases that were operated upon too late. No case appears where a mistake in diagnosis has been made, despite the awful array of affections which has been drawn up as liable to render uncertain the recognition of appendicitis. On the other hand, very many cases of operation with the expectation of finding other disorders have proved to be appendicitis.

Who shall operate? The operation for appendicitis may prove to be the most easy; but it is never trivial, often trying and sometimes even baffling the skill of the very best abdominal surgeons. Hence, he who undertakes operation for the removal of the appendix for disease should be equal to dealing with any of the complications and emergencies of abdominal surgery. There is scarcely a complication which occurs in abdominal disease that may not be met with in operations upon the appendix. If a man knows only how to reach the appendix it is not enough; he must be able to cope with any accident or emergency that may arise. Therefore he must have had training in general abdominal surgery.

How shall we operate? There are two classes of cases to be dealt with. One, the acute, where there is perhaps abscess, perforation, or general peritonitis; and, second, those where operation is undertaken in the interval between acute attacks as a prophylactic measure. The indications for the latter will be considered separately further on.

The preparations for the operation are usually of a hurried nature on account of the active nature of the disease and the sudden determination that operation has become imperative. Previous purgation, if successful, will make the chances of recovery much more bright, no matter during what stage of the disease operation is performed. Cases where the bowels have been kept open from the outset of attack are always most favorable. Locally the abdomen should be cleansed as for any other operation.

All writers now agree that the incision should be lateral. Median incision is only permissible when diagnosis from other abdominal disease is not clearly made out, as where we have had suddenly developed, violent peritonitis arise without obvious cause. Even should the median incision have been made and the affection prove to be appendicitis, especially if septic, a lateral incision should still be resorted to, for it is exceedingly difficult and dangerous to drain septic appendicitis cases through a median incision, and often it is impossible to deal with complications, or with the appendix itself, except by the more direct route. I am of the opinion that almost any complication arising from appendix or cæcal disease can best be dealt with through the lateral incision. No writer has regretted making the lateral incision, although many have regretted entering through the linea alba.

This incision should be about three or four inches in length and terminate an inch and a half above Poupart's ligament. It should be carried down to its full extent through the right linea semilunaris until the peritonæum is reached, avoiding, if possible, the epigastric artery which normally would be situated to the inner side of the lower extremity of the wound. I have seen serious secondary hæmorrhage from division of this artery. Having reached the peritonæum, if one does not at once get into an abscess cavity we must exercise great caution not to open the gut by mistake. Sometimes adhesions will be found binding the intestine to the peritonæum in the line of incision, and in these cases it is well to go at once to the lower or upper extremity of the wound, get into the general peritoneal cavity and work upward or downward, as the case may be, to the cæcum, when all adhesions can be separated by the finger or knife and the peritonæum opened to the full extent of the external incision. Of course, the incision should be increased in size if there is any difficulty in getting into the peritoneal cavity, or subsequently if difficulty arises in any manipulation from lack of working-room. But, as a rule, the smaller the incision the better, because of the less risk of subsequent hernia. The head of the colon is then sought out. If now it is found difficult to determine the site of the appendix, the longitudinal muscular bands of the colon may readily be followed down to their termination in the root of the appendix. Then by careful manipulation one can usually trace the appendix, even through a mass of dense adhesions, and dissect it out. As a rule, in acute cases the organ will be found more or less free in the cavity of an abscess with its tip perhaps adherent to omentum or bowel. The appendix is to be dissected out with the finger, and often we do not see it until it is brought out of the wound ready to be ligated off. This manipulation closely corresponds to the modern one of removing the uterine appendages.

Now, what shall be done if the appendix is found to be bound down by a dense mass of adhesions, and if it would take a long dissection and endanger life from the time required to complete the operation? Under these circumstances I would advise that the appendix be left alone rather than run any great risk of the patient's life to complete an ideal operation. We are often compelled to operate to save life, and that alone, even if we do run the risk (as of leaving the appendix) of recurrence. I do not regard the operation as complete in any case unless the appendix is removed, and we should never hesitate to dissect out or remove the organ simply for fear of opening up the general peritoneal cavity.

Cases of recurrence with great violence of symptoms are upon record where operation had been performed and the appendix not removed. Here, again, we have a parallel with the removal of the uterine appendages. Who considers that he has done a complete operation when he simply drains a pyosalpinx? yet there is a small (but constantly decreasing) proportion of these cases that must be so treated rather than endanger life by prolonging operation, shock, and anæsthesia.

If the appendix can be excised, the question arises as to how we shall deal with it after separating all adhesions. In septic cases it will be found usually impossible to investigate the stump, after cutting away the appendix, into the cavity of the cæcum and approximate the peritonæum over the remaining opening. Where we operate between attacks the appendix, as a rule, can be dealt with in this manner and the investigated stump retained by a few Lembert sutures approximating the surfaces of the cæcum over the aperture. When, however, the organ and its surroundings are swollen and gangrenous the conditions are such that it is generally impossible to investigate the stump. It has seemed quite sufficient in these septic cases to ligate the appendix a quarter of an inch from its root with strong silk, and then cut off both the appendix and the ligature ends. But ligatures will neither become absorbed nor encapsulated where septic conditions are present, and I have seen the threads coming out of the wound months afterward from a persisting sinus or by ulceration. So it occurred to me that we might resort to the old surgical proced.re of leaving one end of the ligature hang out of the wound. That experiment I am now trying in a recent case. Chronic ligature sinuses assist in the production of hernia by interfering with solid union.

Frequently the appendix will be found with a mes-appendix. This should be ligated *en masse* or in sections, and cut away from the appendix. Then the appendix is ligated at its base and removed. Removal of the appendix is almost universally recommended, but Mr. Treves has simply straightened an appendix which he found angulated by adhesions and left it in the wound. Mr. Tait has practiced in more than one case splitting open the appendix and inserting a fine drain-tube into it. From these instances it will be seen that there exists in some minds an almost superstitious fear of removing the appendix. Certainly no sentiment can exist concerning the ablation of the appendix such as there is in regard to the ovaries and Falloppian tubes? Having the appendix once in hand, it does not add to the dangers of the operation in the least degree to remove it, while recurrence of the disease is thereby rendered impossible.

Occasionally the appendix is found to have sloughed off at its root, leaving a ragged opening into the cæcum. In one or two cases the edges of the opening thus left have been inverted and closed successfully by Lembert sutures. In others the wound was left entirely open and packed with gauze; an intestinal fistula or artificial anus formed, but in time closed spontaneously. Yet another required a subsequent operation and Lembert sutures before it was cured.

Some surgeons recommend that in septic cases a little flap of peritonæum be sewed across the stump, or that it be tucked under a bit of omentum. I can see no advantage in this. It prolongs the operation and does no good, while by so doing we risk the formation of a secondary abscess pocket. Very many appendix stumps have been simply dropped into the wound again after ligation; fæcal fistulæ did not form and the wound closed satisfactorily.

Any portions of gangrenous omentum presenting in the wound should also be ligated beyond the junction with healthy tissues and cut off.

Any small openings into the peritoneal cavity may next be sewed up carefully if the general peritonæum does not require drainage.

Then in regard to irrigation. If the general peritoneal cavity has been opened extensively, or if it is septic, it should be thoroughly washed out through the lateral incision. If it has not been involved, the abscess cavity and wound alone should be irrigated. Under the latter circumstance we may employ a strong bichloride solution, but if the peritonæum is to be flushed, nothing but water should be used.

If the general peritonæum has been septic or extensively opened or manipulated, it is essential to use drain-tubes to the base of the pelvis. The ordinary straight glass tubes do not answer well, and rubber is not satisfactory. Here I have a collection of angulated and curved glass tubes, most of which have been used with great satisfaction in appendix cases. The angle makes it possible to get the tube to fit well over the brim of the pelvis, yet not to project awkwardly from the lateral wound. By attaching a few inches of rubber tubing to the end of the ordinary cleansing syringe the bent tube can readily be cleaned.

The suturing of the wound is especially important if the case is *not* a septic one. Then the tissues should be sutured, layer by layer; this gives the best assurance of firm primary union and the avoidance of hernia. If, however, the wound is septic and drainage or packing is employed, secondary union is inevitable. But I would still urge that the wound be as carefully sutured as possible in all cases, leaving ample room for exit of the drain-tube or packing. And I might say, in passing, that simple packing with strips of double cyanide or iodoform gauze will be found to answer all purposes of drainage in cases where the general peritonæum does not also require drainage.

Some surgeons advise using no stitches in septic cases, but simply packing of the entire wound with gauze. But by suturing we can usually secure primary union in a portion of even a foul wound, and temporary stitching has appeared to give a certain anchorage and support to the subjacent intestines, which, when the sutures are removed, is more or less retained. The stitches, of course, are to be removed, one or more at a time, when swelling, infiltration, tension, or deficient drainage become apparent. Strips of adhesive plaster should be employed to give the wound support and approximation during granulation.

Complications such as gangrene of intestine or mesentery must be dealt with upon general principles of abdominal surgery. If intestinal obstruction complicates the case, the site of obstruction should be ascertained, and the condition relieved, if possible, before closing the wound. Cases in which obstinate constipation has existed up to the time of operation should be examined during its performance for possible obstruction.

Should peritonitis develop subsequent to operation, and not speedily yield to active purgation, the wound must be reopened and the abdominal cavity irrigated thoroughly and drained. Continued obstruction could probably be best dealt with through a new median incision rather than through the original wound.

As soon as the patient comes out of ether, if the bowels have not been well emptied before operation, it is my custom to at once begin the administration of one-eighth-grain doses each of calomel and podophyllin, at twenty-minute intervals, until purgation is accomplished. This usually takes but a very few hours. Later, salines may be employed if required.

Full strength peroxide-of-hydrogen solution has given me great satisfaction for cleansing and washing the wound-cavity when suppuration commences and sloughs are forming; it greatly facilitates the separation of the latter.

Persisting fæcal fistulæ usually close spontaneously in time. Should they not, then reopening of the parts several months later and suturing of the cæcal or other opening with Lembert sutures is indicated, and has proved successful in several instances.

In conclusion, let me say a word in regard to operations undertaken in the interval between acute attacks, or what may be termed *prophylactic operative treatment.*

The indications for this measure are: Constantly recurring attacks (usually indicative of the presence of a foreign body in the appendix), which interfere with the individual gaining a livelihood, or render his life a constant burden, worry, and expense to him; also, where recurrent attacks have taken place in those—such as seamen, hunters, explorers, etc.—who are liable to be again attacked when they may be out of reach of adequate surgical aid. In this class of patients, operation during quiescence of the disease should be considered, and perhaps urged by the medical attendant. In most other cases I do not think excision of the appendix should be often attempted in the quiescent period. We should rather counsel delay until the onset of the next acute seizure, when we can conscientiously urge the removal of the offending organ at once—that is, on the first or second day. This advice is given principally because of the great difficulties and dangers frequently encountered in operating during the intervals of attack when the adhesions are extremely dense. In fact, patients have died as a result of the long time required to complete the operation, because of the elaborate dissection required to free the appendix from its matrix of densely organized adhesions. In several instances the very best operators have been compelled to abandon these operations in the interval of attacks, not only without having been able to remove the appendix, but also without having been able to discover the organ in its bed of adhesions.

Dr. William Pepper scarcely thought that he needed to say much, for the subject as presented was so largely one of operative technique that the views of a purely medical clinician possibly were scarcely appropriate. Assuming that the subject under discussion included all the acute inflammatory affections of the appendix, cæcum, and circumcæcal tissues, much had been said to which he should take strong exception from the standpoint of a pure medical practitioner. He believed that if every patient with appendicitis was operated on the mortality would be tenfold what it now was. For more than a quarter of a century he had been in the habit of seeing a great many cases of appendicitis every year. He based this statement partly upon the classical researches of Dr. Fitz, who had demonstrated more clearly than any other that in a large proportion of cases of right iliac trouble the appendix shared in the trouble, if, indeed, it was not the starting-point of the trouble. Now, as a general rule, these patients recovered under medical treatment and remained permanently well afterward, no surgeon being associated in the treatment of the case. In no year during the past two decades had he failed to see a considerable number of cases of this kind, and the cases that had demanded operation, as contrasted with those which had ended in perfect recovery without operation, were probably at least as one to a score. He thought that the assertion that as soon as appendicitis was suspected the surgeon should be called in was quite out of accord with the experience of physicians the world over. In the vast majority of cases, in first attacks at least, the disease underwent resolution and terminated with some more or less permanent injury to the appendix, but without going on to the production of abscess, provided the treatment was instituted early and kept up faithfully. In many of these cases there was early development of induration and fullness in the right iliac fossa, and in proportion as this appeared early was it likely that the case would run a favorable course, or, if there were subsequent signs of suppuration, it would admit of treatment by the simple Willard Parker extraperitoneal incision. In proportion as the symptoms were violent, without localizing phenomena in the right iliac fossa, was there danger that rupture of an abscess had occurred, to be followed by the development of general peritonitis. He was entirely at one with the speakers who insisted on early operation where this latter condition existed. He had had the operation performed as early as thirty-six hours from the initial symptom, and had found suppurative peritonitis already present. He was sorry to say that in this case there had been a fatal result, as would sometimes happen in the hands of the most skillful operator. He thought that the experience of all would confirm the statement that the operation was a grave one. The operation of laparotomy for disease of the appendix, whether it was exploratory or radical, was not a trifling operation, and he had rather extensive records to show that it was an operation attended with a great deal of danger, even in the hands of the most brilliant operator. He would protest against the view that, as soon as the diagnosis of appendicitis was made, an operation should be encouraged.

He believed that it was possible to note the time, in a certain large proportion of such cases, when the symptoms indicated the spread of inflammation, and then he thought that the operation could not be too promptly performed.

The question of diagnosis remained, in spite of all the good work that had been done, a most difficult question. The McBurney point he believed to be largely without value, uncertain in its location on account of the very varying relations of the appendix, apt to be mistaken for points of tenderness due to wholly different causes, and apt possibly to be mistaken for sympathetic tenderness of nerve points in the abdominal wall. He therefore believed that this sign, from which much had been hoped, would prove to have very little positive diagnostic value.

The rectal examination had seemed to him to be of very material value; it was true, not so early as we could wish, but in many operative cases he had found the roof of the pelvis altered as determined by a careful rectal exploration. He felt that he was wholly incapable of putting in words, and he did not know that this had been done, the exact differential diagnosis of the cases which demanded early operation. While this was true, he would still urge the view that this did not justify the subjection of every patient with appendicitis to laparotomy. He trusted that we should learn to arrive at a more exact differential diagnosis. There was a combination of a certain history of the development of the case which, taken in connection with the facies, the general symptoms, and the abdominal condition, as determined by external and by rectal examination, would, in the hands of an experienced clinician, serve in the great majority of cases as a basis for this diagnosis. It was difficult to state this in terms as precise as we would state the terms of a diagnosis of encysted pleurisy, but he thought that those who had studied these cases would recognize a *tout ensemble* which admitted of a diagnosis of those cases which should be subjected to early operation. He believed, on the other hand, that in the great majority of cases we were justified, either by the mildness of the symptoms or by the localizing tendency in the right iliac fossa, in urging medical treatment, and this was further justified by the very frequent recovery in these cases.

Lastly, he would say a word as to his entire opposition to operation in the majority of cases in the interval between recurring attacks. He thought that medical records would show too many cases where thorough treatment—hygienic, dietetic, and medical—had been followed by complete cure. He had had so many such cases in which cure had occurred after a number of recurrent attacks that the adoption of a general rule that where a patient had had two, three, or more attacks he should be subjected to a grave operation like laparotomy seemed to be a dangerous postulate. He thought it better to secure the consent of the patient to the performance of the operation should alarming symptoms make their appearance in any attack, and then to persevere with carefully regulated medical treatment. There were cases unquestionably where the conditions of the patient, the fact that he might be attacked when out of reach of skillful surgical aid, made it necessary for the patient to decide between a change in his habits of life and an operation. These were exceptions, and it did not follow that a general rule that laparotomy should be performed in the interval between recurrent attacks of appendicitis should be laid down.

Dr. Keen took exception to what Dr. Pepper had said in reference to not calling in a surgeon in a case of appendicitis until operation was needed. It was of the most urgent importance that the surgeon be called in—not to do an operation, but for consultation; for his judgment rather than his knife; not necessarily to do a laparotomy immediately, but for the purpose of being ready to deal intelligently and promptly with the conditions when the time for operation arrived. He should not be called in, then, new to the case and unfamiliar with its features, and desiring, therefore, time to become familiar with it, unless the case was so serious that operation was evidently and instantly required. The surgeon should be with the physician the moment the diagnosis was made, not to do the operation then, but to be ready to do it the moment that it became necessary. He had seen patients lost, and had lost some himself, he was sure, from delay, from the natural unwillingness to plunge right in and do a laparotomy the moment one was called to see a case that really needed it, and yet from unfamiliarity was regarded as a doubtful case. We should have every point at our fingers' ends and be familiar with the fluctuations of the symptoms. Then our aid would be much more valuable than if we were called in only when the emergency for operation had arisen. A plain case every one could read and decide quickly. It was the doubtful cases that needed carefully weighed decision—a snap judgment on a sudden call was more apt to be wrong than right.

Mr. Thomas Bryant, of London, assumed that the term appendicitis as here used included all those cases which had been spoken of as typhlitis, as perityphlitis, and by other names, all of which have probably more or less connection with the appendix itself. Starting with that assumption, he at once proceeded to the treatment of appendicitis. Here at the beginning, although a surgeon, he agreed very strongly with the observations of Dr. Pepper. He was convinced that operative treatment was most valuable in appendicitis. He was equally convinced that delay in operating was the wisest course in the majority of cases. It seemed to him that the authors were a little mixed in regard to the classification of these cases. They had included cases that were acute from the beginning with cases that were not acute, that had a slow and steady course. The cases that had a slow and steady progress, that began with localized pain in the right iliac fossa, accompanied with tenderness and soreness, less swelling without any very acute symptoms, were cases which one must feel could be dealt with satisfactorily without the surgeon's knife; he would not say without the surgeon's aid, but without the surgeon's knife.

Dr. Morton had spoken strongly of the use in these cases of calomel and podophyllin. Such statements had rather startled him and he would have been glad to have some evidence of its value given. He would prefer to follow the line of treatment suggested by Dr. Pepper, and not give calomel and podophyllin in frequently repeated doses. He would rely more upon rest, belladonna externally and opium internally, and diet, believing and knowing that by such means the bulk of the cases were permanently cured. In exceptional cases, where these good results did not occur and graver symptoms appeared, the swelling increased, and symptoms of peritonitis developed, the surgeon's aid became of immense value, and certainly where these symptoms did appear and there was a steady progression toward the bad, it was unquestionably time for the surgeon to take a hand. In all acute cases he had no doubt as to the right of the surgeon to interfere. He had seen cases where within thirty six hours after such acute symptoms it had been necessary for the surgeon to expose the part and let out the inflammatory fluids, if not remove the appendix itself. To his mind these two classes of cases which he had briefly described fairly indicated the line that the surgeon should take—trusting very much to expectant treatment in the least acute cases and surgically interfering early in the acute.

In reply to the question in regard to the propriety of operating, whether or not the surgeon was justified in operating between the attacks, his judgment would decide in the negative. In the majority of cases there was no second attack. If there was a second attack it could be treated on the same lines as the first, only there was a tendency toward interference if the symptoms did not settle down rather rapidly. He said this because he was sure that he had seen many instances where things had settled down after a second attack without any further trouble. Because we had met with cases that after the second, third, fourth, or it may be the eighteenth attack, had at last come to the surgeon's knife, he thought that we should not accept that as a decided evidence in favor of surgical interference. In fact, we must be governed by each case by itself, and we should surgically interfere only when we found small chances of Nature terminating the case guided by medical skill.

Then we came to the operation. He was not sure that he was quite in accord with the authors of the papers. It was quite true that in doubtful cases of appendicitis—cases in which one did not expect to find a great deal of pus or inflammatory fluid—the incision in the right semilunar line would probably be the best. In this way one came down readily on the cæcum, and was more apt to find the appendix. The majority of cases with which the surgeon had to deal were not quite in the stage to which he had referred. There was generally much more diffused swelling about the cæcum, and that swelling gravitated backward and upward, sometimes toward the loin. He could recall a good many cases in which he had operated where he had been certain the swelling was about the cæcum, but where it was backward toward the lumbar region. He could recall several instances in which his attention had been drawn more to the lumbar region than to any other part, and it had been only by going into the history that he had concluded that the trouble was located in the cæcum. The lateral incision was a good one in these cases, but it must be more lateral than the semilunar line. He had made his incision well back, corresponding to the line of the anterior superior spinous process and tending backward toward the loin. In this way one got well at the cæcum, and one's finger could be readily passed into the iliac fossa. One could examine the part, one could drain the part well and generally by the open treatment, not being too careful to stitch the wound, and a good result would take place. He would say that in a large number of cases—his friends might say neglected cases—an incision more posterior than the semilunar line would be the better one. The incision in the semilunar line should be reserved for cases that had not advanced to such an extent as he had just indicated.

Another point to which he would like to allude was the question of whether or not these were all really cases of appendicitis. In at least three instances of cases which had presented a history of a cæcal trouble, but in which death had resulted from some other cause, he had found cicatrices in the posterior part of the cæcum some distance from the appendix. In two cases that he had treated the evidence had pointed to the cæcum as the seat of trouble. In one, in a boy aged twelve years, he had incised an abscess, and eventually a large orange-seed had escaped. He had no reason to believe that that could have come from the appendix. In the second case a piece of bone that had been swallowed had evidently passed through the wall of the cæcum and caused suppuration. These two cases had presented all the features of typical appendicitis. They had been dealt with in the way that he had stated and both patients had recovered. We must, he thought, bear in mind that these cases were not all due to disease of the appendix, and that many of them might have no connection with it.

This brought him to another point, and that was as to whether or not, under all circumstances, it was expedient to search very carefully for the appendix. In these severe cases should we disturb the parts so much as was often absolutely necessary? We had had to-night good evidence of the difficulty of finding the appendix in some cases. He had always felt that in these cases we should do more harm than good if we searched too far for the appendix. He was satisfied with well irrigating the part and treating it by the open method.

Dr. Morton had mentioned hernia as following the operation. He had never seen this. That might be because the bulk of his incisions had been made posteriorly. He had done many of these operations, and had seen many others done by his friends, but had never seen hernia as a result.

The subject was further discussed by Dr. J. M. Baldy, Dr. Frank Woodbury, Dr. H. A. Hare, Dr. De Forest Willard, Dr. M. F. Kirkbride, Dr. Joseph Hoffman, and Dr. M. Price.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for October 16th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Oct. 10.	1,515,301	722	76	..	..	..	..	..	18	11	14	4	7
Chicago, Ill.	Oct. 10.	1,099,850	443	35	..	..	..	..	..	44	9	28	..	3
Brooklyn, N. Y.	Oct. 10.	806,343	396	44	..	..	..	..	..	7	4	7	2	1
St. Louis, Mo.	Oct. 10.	451,770	180	....	..	..	..	..	..	7	2	7	1	....
Boston, Mass	Oct. 10.	448,477	170	26	..	..	..	..	..	..	..	4	..	....
San Francisco, Cal.	Oct. 3.	298,997	117	14	..	..	..	..	..	1	..	7	..	....
Cincinnati, Ohio	Oct. 9.	296,908	100	13	..	..	..	..	..	2	2	6	1	....
Cleveland, Ohio	Oct. 3.	261,353	99	6	..	..	..	..	..	4	1	2	..	....
Cleveland, Ohio	Oct. 9.	261,353	99	5	..	..	..	..	..	6	..	5		....
Washington, D. C.	Oct. 3.	230,392	96	13	..	..	..	..	..	2	..	3	..	3
Washington, D. C.	Oct. 10.	230,392	103	15	..	..	..	..	..	4	..	5	..	1
Minneapolis, Minn.	Oct. 10.	164,738	37	....	..	..	..	..	..	3	..	4	..	....
Rochester, N. Y.	Oct. 10.	133,896	46	5	..	..	..	..	..	..	..	2	..	....
Kansas City, Mo.	Oct. 3.	132,716	20	3	..	..	..	..	..	..	..	..	..	....
Providence, R. I.	Oct. 10.	132,146	58	....	..	..	..	..	..	1	1	3	..	2
Indianapolis, Ind.	Oct. 10.	105,436	37	6	..	..	..	..	..	..	..	3	..	....
Toledo, Ohio	Oct. 9.	81,434	31	....	..	..	..	..	..	1	..	3	..	1
Richmond, Va.	Oct. 10.	81,388	37	6	..	..	..	..	..	1	..	7	..	....
Nashville, Tenn	Oct. 10.	76,168	25	3	..	..	..	..	..	1	..	..	..	....
Fall River, Mass.	Oct. 9.	74,398	44	5	..	..	..	..	..	2	..	..	1	....
Erie, Pa	Oct. 3.	40,634	15	1	..	..	..	..	..	1	..	2		....
Portland, Me.	Oct. 10.	36,425	16	....	..	..	..	..	..	..	..	..	..	....
Binghamton, N. Y.	Oct. 10.	35,005	14	1	..	..	..	..	..	1	..	1	..	....
Yonkers, N. Y.	Oct. 10.	32,033	12	1	..	..	..	..	..	1	..	1	..	....
Mobile, Ala.	Oct. 10.	31,076	12	1	..	..	..	..	..	..	..	..	..	....
Auburn, N. Y.	Oct. 10.	25,858	7	....	..	..	..	..	..	..	..	..	..	....
San Diego, Cal.	Oct. 3.	16,159	3	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.	Oct. 3.	11,750	8	1	..	..	..	..	..	..	..	..	..	....

Friedreich's Ataxia: its Relation to the Conducting Paths in the Spinal Cord.—At the recent Congress of American Physicians and Surgeons Dr. David Inglis, of Detroit, read a paper upon this subject before the American Neurological Association. He reported in brief a case of Friedreich's ataxia in a boy six years of age, in which the symptoms conformed accurately to Friedreich's own summary of the characters of the disease—viz.: "Impairment in the combination and harmony of movements developing gradually and spreading from the lower to the upper half of the body, and always involving finally the organs of speech; sensibility and the functions of the special senses and of the brain being intact; paralysis of the sphincters and trophic disturbances are absent; less common phenomena are curvature of the spine, sensations of vertigo, and nystagmus. From a clinical point of view we must regard the disease as a progressive paralysis of the faculty of combination of movements."

A review of the thirteen recorded autopsies showed a practical agreement that the pathological condition underlying the disease consisted in a progressive sclerosis, which always affected the column of Goll, the column of Burdach also, but not so completely, the direct cerebellar tracts, with Clarke's column in most cases, and the crossed pyramidal tract in some cases, but the sclerosis was here not so intense. We had to deal with the disease of the tracts which were usually looked upon as centripetal and as conveying sensory impulses. The author contended that the symptoms of Friedreich's ataxia afforded a demonstration that these tracts did not convey sensory impulses upward, for sensation was not impaired, but that they were the main tracts for the conveyance of co-ordinated motor impulses downward; that their anatomical relations with the medulla oblongata, cerebellum, and mid-brain, as well as the facts of Friedreich's disease, agreed in showing them to act to co-ordinate motor impulses of the mid brain, the cerebellum, and the higher and lower levels of the spinal cord. The facts of embryology strengthened this theory; at the end of fœtal life, at a time when the pyramidal tracts were undeveloped, the posterior columns and direct cerebellar tracts were complete. Their function evidently began at once after birth. When we remembered that the new-born infant was characterized, not by voluntary control of its muscles, not by accuracy of sense perception, but by an extensive co-ordination of involuntary motor functions, the conclusion was easy that these, the only tracts fully developed at birth, subserved these purposes. The direction of Wallerian degeneration was not necessarily the same as the direction of normal physiological impulses in any given nerve tract.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, October 31, 1891.

Original Communications.

THE ELECTRO-PHYSIOLOGY OF REFLEXES,

WITH THE DESCRIPTION OF A HITHERTO UNKNOWN LOCALIZED PHYSIOLOGICAL REFLEX PHENOMENON.*

By GEORGE W. JACOBY, M. D.

Our knowledge concerning reflexes produced by electrical excitation is still of the most meager kind, and the few facts known of these reflexes, together with the statements made regarding them, are still enveloped in darkness.

Whereas the laws governing the production of mechanical reflexes, superficial as well as deep, have been carefully studied and the conditions of their presence or absence have become part of positive knowledge, an electro-physiology of reflexes, in the sense of experiments having been made for the purpose of casting light upon the kind and nature of reflexes produced in the normal body by the peripheral application of the electric current, has not been formulated.

Although the fact has been generally conceded, the reasons for this lack of knowledge do not seem to be very clear; it is said that it is difficult to study the normal laws of these reflexes, because in the normal body the reflex paths of the gray substance can be excited only by currents of great intensity; as Gräupner says, by currents of so great intensity as to exert a deleterious influence upon the nerve substance. Furthermore, it is said that the interpretation of the motor phenomena thus produced is surrounded by great difficulties; that it is almost impossible to say whether they are of a reflex nature or are produced by current diffusion. As will be shown farther on, I am able to prove that both of these reasons are invalid, and are only *a priori* arguments which practically are entirely untenable. Another difficulty in the production of these reflexes should, however, not be underestimated, and that is that only very few people are capable of excluding all cerebral action at the time when, by the introduction of the current, a painful impression is produced. No matter how weak the current employed, a current of sufficient strength to produce a reflex is painful, and the concomitant cerebral action which takes place must have an antagonistic influence upon the reflex action of the spinal cord. In my experiments, on account of the distant and localized character of the reflex, even this objection is reduced to minimum importance.

The first person to pay any attention to electrical reflexes was Remak. While it is true that all of his observations bear upon phenomena occurring only in single normal and pathological cases, he nevertheless devoted a great deal of care and study to this subject, and in his well-known work has described a number of electrical reflex phenomena the existence of which has been verified by Braun, Runge, and others. Inasmuch, however, as these phenomena occurred only in single cases they could be of interest, but could not and did not carry with them any scientific value, and consequently were soon entirely forgotten. In the same way as Remak was able to produce galvanotonic reflex contractions (contractions lasting as long as the current passed) upon the normal body, he was also able to produce these same phenomena in old hemiplegics. He says: "I have in hypertonic hemiplegias (not in atonic ones) found hemilateral excitable cervical zones upon the same side as the extravasation, so that excitation of this half of the neck produced reflex contractions in the hand of the healthy side, mostly in the territory of the nervus medianus and ulnaris, while similar excitation of the neck upon the paralyzed side produced either no contraction or only a weak one in the territory of the nervus radialis of the paralyzed side."

In the contractured extensors of the arms of old hemiplegics Remak was able to produce similar phenomena by galvanic excitation of the crural and its branches, or of the sciatic upon the paralyzed side. In the same manner crossed reflexes were obtained in cases of tabes. Of such a case it is said "the application of a current of fifty Daniell's cells to the upper part of the sciatic nerve, as well as to the plexus lumbalis of the left side, produces strong contraction of the right calf, and also a slight contraction of the posterior muscles of the right thigh." Reversal of the position of the electrodes to the opposite leg reversed the contractions, these being hardly visible upon the side to which the current was applied, but distinct upon the opposite leg.

Such and similar reflex contractions have been seen by only a few observers since Remak described them, and, beyond the acknowledgment of their existence, no facts concerning their nature have been acquired. Of the supposed diagnostic value of such crossed reflexes in the face, as being characteristic of affections of the pons and medulla, I can say nothing here. As being a variety of crossed reflexes, the diplegic contractions of Remak may be referred to in this connection. Remak produced these diplegic contractions by placing the button-shaped anode in the fossa mastoidea behind the angle of the inferior maxilla, or upon the neighboring region of the nape of the neck, and by closing the current with a large flat cathodal electrode placed between the scapulæ above the sixth dorsal vertebra. Reflex contractions of a peculiar character and of more or less intensity then occurred in the muscles of the arm opposite to the anode. Remak asserts that these contractions can not be produced with any other position of the electrodes. They were found in cases of arthritis nodosa, and of progressive muscular atrophy, but not in healthy individuals. Of the therapeutic results which Remak thought he was able to obtain through production of these diplegic contractions I will say nothing. He recognized their reflex nature, and thought that they were produced by an anodal excitation of the ganglion supremum cervicale. The few observers who have been able to reproduce these contractions have done so under conditions at variance with those required by Remak. They were found by Drissen in a case of vaso-motor neurosis, and in one of paresis of the nerves of the arm; by Moritz Meyer in a case of arsenical paralysis; by Fieber in lead paralysis; by Eisenlohr in bulbar paralysis; and by Erb in a case of progressive muscular atrophy, in one of neuritis or spinal affection, and in one of atrophy of the hand of undecided nature. In the majority of cases described by others the position of the electrodes also differed from that employed by Remak. Fieber and Benedikt were able to produce diplegic contractions with the faradaic current as well as with the galvanic, and Eulenburg obtained them from any point on the surface of the body with a stabile or a labile current; all in all, then, a series of disputed and undisputed occurrences which present a confusion worthy of a greater array. For discussion of the theories of production of these phenomena I must refer those interested to Erb.

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* Read before the American Neurological Association at its seventeenth annual meeting.

Of late years, to my knowledge, only Gräupner has called attention to the production of electrical reflexes. Gräupner, in a supposed case of transverse myelitis, was able to note an abnormally increased reflex which was dependent upon mechanical excitation of a certain sensory nerve. Electrical excitation produced the same result (dorsal extension of the foot with extension and abduction of the toes upon excitation of the branches of the nervus tibialis), but also showed that the reflex changed in intensity and character according to whether the negative or the positive pole was applied to the nerve, and according to whether a quick closure and opening of the current was employed, or whether the current was allowed to pass for a longer period of time. These results of Gräupner's are mentioned on account of the varying action of the reflex to the different poles, but I do not consider any reflex an electrical one which can be produced by any other means than the electric current. Distant mechanical reflexes produced by excitation of the nerves almost anywhere on the surface of the body are not infrequent, and it is probable that these same reflexes could be produced by an electrical current, this acting simply as a mechanical irritant.

For years the main facts as here detailed have from time to time occupied my attention, and I have made frequent attempts to confirm them. Either on account of the rarity of their occurrence or on account of a train of unpropitious circumstances, I have never been able in any individual, healthy or not, to obtain distant or crossed reflex contractions of the kind described. Some years ago I made experiments of this nature upon a very intelligent patient suffering from hemiplegia with spastic symptoms, to whom I explained the nature and the objects of the experiments. Once while applying a galvanic current to the forearm he called my attention to the fact that when I placed the electrode on his forearm he had a feeling as though his chin twitched. Failing, after several attempts, to produce any visible movement in the muscles of the chin, I gave up the experiment, and, attributing the patient's remark to psychic influence, forgot all about the case until last winter. At this time a male patient, twenty-eight years of age, suffering from writer's cramp, while undergoing an electrical examination of the muscles of his hands, called my attention to the fact that upon closure of the galvanic current upon his forearm his chin upon the same side jerked. It was then that I recalled my former experience, and I consequently paid close attention to all existing conditions, with the following results:

A large sponge electrode was placed upon the breast, over the sternum; the other electrode, a button-shaped one attached to an interrupting handle, was used for making and breaking the current. Placing this electrode over the radial side of the forearm just above the wrist, I was able with a current of eight milliampères and a closure of the cathode to obtain a distinct, quick contraction, localized in the levator menti muscle of the same side. Application of the cathode to the other arm produced a similar contraction in the levator menti of that side. No contraction could be obtained from a closure with the anode. In order to exclude the possibility of directly exciting the contracting muscle by current diffusion, I then placed the large electrode upon the back of the forearm and noted the same result as in the first arrangement of the electrodes—namely, a quick contraction of the levator menti in immediate response to a cathodal closure. Repeated experiments at various times always gave the same results. It was therefore clear that I was dealing with a pure reflex phenomenon—a contraction from a motor nerve in consequence of excitation of a sensory one. Since then I have made these same experiments upon more than two hundred individuals, and each subject, whether showing the reflex or not, was examined repeatedly, so that the number of single trials goes into the thousands. One hundred of these patients were classed as normal or healthy. As normal individuals for my purpose I have classed (1) the perfectly healthy, (2) patients complaining of vague functional symptoms, in whom organic disease could positively be excluded, and (3) arthritic (gouty or rheumatic) patients whose symptoms were confined to the lower extremities. The second and third categories were made use of simply as a matter of convenience, as they furnished a large percentage of my available material.

Of the pathological cases it is not my intention to speak at this time. The experiments were conducted as follows: An Erb's large electrode was placed over the back of the wrist and hand; as already stated, this location was chosen for the purpose of excluding the possibility of directly exciting the facial muscles or the upper part of the cord by means of current loops. As an examining electrode a small Erb's sponge electrode was employed. The results obtained from the examination of these one hundred cases were as follows:

The subjects' ages varied from seventeen to seventy years; forty-six were males and fifty-four females. In seventy-one cases the reflex could be obtained upon both sides; in three cases the reflex could be obtained upon one side only. In fourteen cases involuntary or voluntary distortion of the face was produced by the pain or the shock, and it was not possible to say whether the reflex was present or not; in twelve cases the reflex was entirely absent.

The current strength employed in the cases which showed the reflex varied from four to ten milliampères. In none of these normal cases could the reflex be elicited except with the cathodal closure. Anodal closure, even with as strong currents as could be endured, did not in a single instance produce the reflex. Mechanical excitation of all kinds was also employed, but always without effect. The character of the reflex was, with but very few exceptions, a quick lightning-like contraction of the levator menti of the same side, occurring apparently simultaneously with the closure of the current and differing in no way from a contraction of the muscle produced by direct application of the current. In a few of these cases (twelve) the contractions, while retaining the same character, were of minimum intensity, although distinctly visible. In three cases the contraction was stronger upon one side than upon the other, and in three different cases was not of the kind described, but was slow and tonic in character, remaining as long as the current was maintained. In all except twelve of the seventy-one cases in which the reflex was obtainable, the reflex, having once been elicited with the minimum current necessary for its production, could be increased in intensity up to a certain maximum, in direct proportion to an increase of current strength. The twelve exceptions to this rule were formed by those cases in which only a minimal contraction was produced, and in these this minimal contraction was not augmented by any increase in the current strength.

In this, increase of reflex contraction with increase of current strength, the sensory nerve reacts to the electric current in the same manner as the motor nerve does, and is at variance with the reaction of sensory nerves to other forms of irritation. If a motor nerve is excited electrically, a minimum excitation may be found which will produce a minimum muscular contraction; an increase of this excitation will produce an increased contraction until a maximum is reached. On the other hand, if a reflex is to be produced by mechanical excitation of a sensory area, a comparatively strong excitation is necessary, but, a reflex contraction once having been obtained, this contraction does not increase in intensity with an increase of the excitation.

The reflex now under consideration thus furnishes proof that sensory nerves react differently to galvanic excitation and to simple mechanical excitation.

The parts from which the reflex could be obtained were the same in all cases, and are shown in the accompanying diagram. These parts are the skin over the anterior radial side of the wrist supplied by the palmar cutaneous nerve, derived from the median (Fig. 1, *cp*); the skin over the lower radial half of the forearm, which is a little more than one third of the part supplied by the musculo-cutaneous (Fig. 1, *cl* to 1); the skin of the palmar surface of the thumb, index and radial half of the middle finger, and of the radial side of the palm to a line drawn upward from the middle of the medius to the wrist joint, or about two thirds of that part of the palmar surface of the hand and fingers supplied by the median nerve (Fig. 1, *me* to 2). The reflex can also be obtained upon the dorsal surface from the skin supplied by the musculo-cutaneous nerve (Fig. 2, *cl*), and with stronger currents from the entire dorsal surface of the part of the hand supplied by the radial nerve (Fig. 2, *ra*).

The reflex contraction was, in the majority of cases, localized in the levator menti, although in some cases the contraction took place in the quadratus, both of which muscles are innervated by the facial nerve. In cases in which the reflex is very well marked, by using a bifurcated conducting cord and making a cathodal closure over the reflex area of both forearms at the same time, the entire chin is drawn up and the middle part of the lower lip raised, giving an expression of haughtiness and scorn. As this expression is the physiological result of action, not of the levator menti alone, but of the levator and quadratus menti combined, it seems to me that in all cases the reflex consists in a contraction of both of these muscles, but that in the majority of cases the contraction of the levator preponderates, while in a minority it is more marked—*i. e.*, visible—in the quadratus. These results are of interest even if they only prove the existence of a hitherto unstudied reflex phenomenon, a reflex which, being present in seventy per cent. or more of normal persons, is certainly physiological, and in point of frequency ranks as about third among the superficial reflexes, the plantar reflex being present in about ninety-two per cent., and the cremaster in eighty-nine per cent. But it is my opinion that, by means of this reflex, a path is opened for the study of pathological changes in sensory nerves which will certainly lead to an increase of positive knowledge.

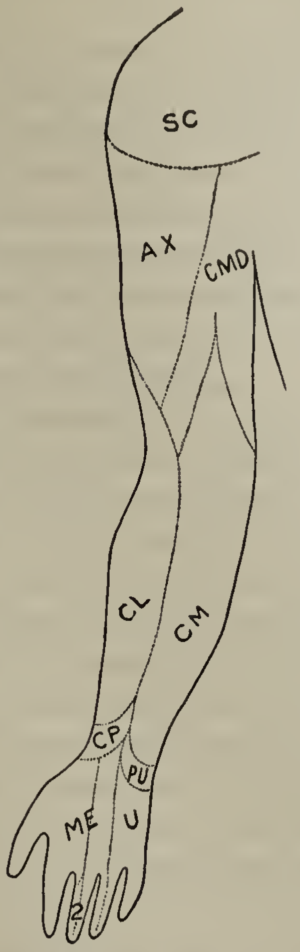

Fig. 1.

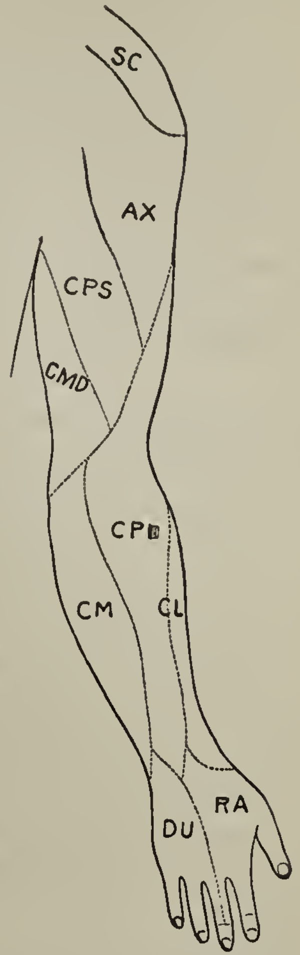

Fig. 2.

That this is not merely a delusional theory on my part is already proved by the records of my pathological cases. I should consider it premature to enter here upon an analysis of these records, as very many more cases than I have examined are necessary to establish any pathological uniformity; nevertheless, I can now state that, while in no normal case could I obtain an anodal reflex, I was able in certain pathological cases to obtain such a contraction; in certain other cases an anodal reflex could be obtained before a cathodal one; and in still others, instead of the normal quick reflex, long-drawn-out contractions, similar to those obtained from muscles showing the reaction of degeneration, were produced. From these facts I am even now able to assert that the sensory nerve, or the central gray substance of the cord, or both, may be pathologically altered by disease so as to show qualitative and quantitative changes to the galvanic current.

In experimental physiology the production of reflexes by the peripheral excitation of sensory nerves has been utilized to draw conclusions as regards the excitability of normal sensory nerves. Thus Pflüger, by means of his experiments with electrical excitation upon a strychninized frog, was able to show that no reflex contraction could be obtained through the closure of a descending current, very weak or no contraction through the opening of an ascending current, and strong contraction by the closure of an ascending current and the opening of a descending one. This translated into modern symbols, with R representing strong reflex and r weak reflex, means: Strong currents produced KaCR, KaOr, AnC, AnOR, thus showing that KaC and AnO produced stronger reflex action than KaO and AnC, and proving that, if the excitability of the central gray substance be increased (by strychnine), it reacts the same to the electrical current as the motor nerve does. Upon the human body, to my knowledge, only Erb has instituted experiments for the purpose of ascertaining the reaction law of sensory nerves. The results of these experiments show that, if S represents sensation, we obtain first KaCS, then slighter AnCS, and then KaOS.

Slight as is our knowledge regarding the physiological reaction of sensory nerves to the galvanic current in comparison with that which we know of the action of electric currents upon motor nerves, it is nevertheless even greater than our knowledge of the pathological changes which may occur in the electrical reaction of these sensory nerves. All that we know concerning these pathological changes is that there is an increase or a decrease of electro-cutaneous sensibility, which usually pursues a parallel course to other sensory qualities; here the electricity is only a means of testing the existence of sensory reaction, but gives us no clew as to any changes in the conduction paths such as we are able to find in the motor ones. Somewhat more than this has been alleged by Mendelssohn, who, in a few cases of tabes, has found the normal sensory-reaction formula altered. Mendelssohn compares his results with Erb's reaction of degeneration, and expresses the hope that a connection may be traced between them and changes in sensory nerves. Gerhardt, reasoning that as zoster is acknowledged to be a neuritic symptom we should expect degeneration of sensory nerves and that these would possibly show a kind of RD, examined various cases of zoster with this idea in view. The unaffected side was used for comparison. Of the examined cases, five showed reduced sensation to faradism and increased sensation to galvanism, while in one of these cases (Case III) there was preponderance of AnCS over KaCS, and in another (Case IV) AnCS was as great as KaCS.

All experiments of this kind naturally suffer from the disadvantage of being entirely dependent upon the statements and feelings of the patient, and how unreliable these generally are need not be emphasized. By utilizing the reflex which I have described, we have a visible proof of our results—one entirely independent of any subjective sensation. I have no doubt that, attention having once been directed to this reflex, other reflexes of a similar nature may be found in various parts of the body, and that we shall, by their examination, obtain knowledge, not only in regard to pathological changes in sensory nerves, but also in regard to changes in that part of the cord upon whose integrity the elicitation of such reflexes depends.

Finally, as a matter of historical interest, it is necessary to state that the reflex here described has been seen and casually mentioned by Remak. In an addendum to the written communication of Braun to Professor Remak, to which I have already referred, Remak makes some interesting and critical remarks. In a foot-note to this addendum Remak says: "A very interesting example of reflex contraction is furnished by a woman suffering for three years from a hemiplegia with contracture, who is being treated in my poliklinik. As soon as the negative electrode of a 40-cell Siemens and Halske battery, with any position of the other electrode, touches the nervus radialis superficialis (next to the arteria radialis) of the paralyzed arm, the musculus quadratus menti of the same side contracts."

It seems very strange that Remak, who at that time was devoting so much attention to the study of electrical reflex phenomena, should not have attempted to obtain this same reflex upon the healthy side of this patient, or have sought its presence in other individuals. Also strange is the fact that this foot-note has probably been overlooked, and certainly has not been mentioned by any writer who has cited from Braun's letter.

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SOME ANATOMICAL RECOLLECTIONS PERTAINING CHIEFLY TO THAT PORTION OF THE INTESTINAL CANAL DENOMINATED RECTUM.

By WILLIAM BODENHAMER, M. D., LL. D.,
NEW YORK.

It continues to be a very favorable sign of the mental soundness of the medical profession when we daily observe the strong disposition of the many, both old and young, to cultivate anatomy minutely, thoroughly, and in all its ramifications. In the early days of the writer it was not so; then the students were generally prone to seek for the minimum merely, not the maximum of attainments in anatomy; they too often studied it as a task, and regarded it with disgust. Since then, however, how infinitely great and important is the change, and how brilliant, both in surgery and in medicine, are its results!

It was also in those early days that a singular notion prevailed, to some extent, that a comprehensive knowledge of anatomy was essential to the surgeon only, whereas a much smaller amount was sufficient or necessary for the physician. This fallacy, to a small extent, still lingers among us at the present time; but it has been and is always an egregious mistake. All the organs and tissues of the body are liable to disease, and it follows, of course, that the more intimately we are acquainted anatomically with their healthy condition, the better we are qualified to understand and to treat successfully their altered and morbid condition.

The truth is, we now plainly see that the best surgeons and the best physicians are those who either have been teachers of anatomy, or who have paid great attention to its cultivation; all such soon rise into notoriety, being distinguished by their sound anatomical and scientific education.

Appellation.—The writer will now call attention to the name *rectum*, as a technical term applied to the lower portion of the intestinal canal. The Latin term *rectum* has been adopted into both the English and the French languages. It is derived from *rectus*, straight, a right line. Now, we all know that a right or a straight line is not a mere random extension, but, as geometry teaches us, it is the shortest distance between two given points; and we all know too, and are obliged to know, that the inferior extremity of the intestines does not represent a right or straight line.

The modern anatomists charge the ancient anatomists with the application of the word *rectum* to the terminal portion of the intestinal canal, declaring that the ancients were ignorant of human anatomy, that their dissections were confined to animals only, and that their descriptions of the parts thus dissected were made and applied to the different or corresponding parts of the human body; hence, say the moderns, the ancient anatomists described and named the lower portion of the intestines *rectum*, a right line, as they observed it in some animals. But this, in the opinion of the writer, is a great error, which he will now endeavor to prove—namely, that the ancients never applied the word *rectum* to any portion of the intestinal canal, either in animal or in man. Previous to the fourteenth century the intestines were not divided by anatomists into the several named portions which now obtain. This division was first made by the able professor of anatomy, Mundinius, of Bologna. He was the first anatomist who distinguished the intestines into *duodenum*, *jejunum*, *ileum*, *colon*, and *rectum*. Mundinius has also the honor and the credit of the first localization of the functions of the brain. He divided the brain into different compartments or cells, each one containing an intellectual faculty, etc., thus fairly anticipating by many centuries the united labors of the two distinguished phrenologists, Gall and Spurzheim. (*De omnibus humani corporis interioribus membris anatomia*, 4to, Argentorati, 1513.)

The appellation *rectum*, then, and its application to the terminal portion of the intestines, can not be attributed to the ancients, as it unjustly has been, inasmuch as this event took place so many centuries subsequently to the times of the ancients properly so called.

Cheselden, in describing the cæcum, says that "in man it is called one of the large guts, though it is the smallest by far; but the mistake arises from copying the ancients, whose descriptions of all the parts contained in the abdomen seem to be taken from dogs." (*Anatomy of the Human Body*, p. 156, 8vo, London, 1778.)

Mr. John Bell says: "I know no better proof of the impracticability of altering the names in anatomy than this, that anatomists have in almost every age insisted on the impropriety of calling this gut, which answers in its shape to the curve of the sacrum, a straight gut; and yet always, and to the present day, it is rectum. The name rectum is taken from the old anatomists, who described from brutes." (*Anatomy and Physiology of the Human Body*, vol. iii, p. 234, 8vo, New York, 1817.)

M. Paré calls the rectum the *right* gut, by reason of the *rightness* or *straightness* of the passage. (*The Works of Ambroise Paré*, English version, by Johnson, p. 106, folio, London, 1634.)

Astruc says that "the rectum is extended in a *straight line* to the anus, whence it receives the name of rectum." (*Dissertatio chirurgica de fistula*, English version, by Barrowby, p. 5, 12mo, London, 1738.)

Winslow says: "The last of all the intestines is named *rectum*, or the straight gut, from its situation; for, when viewed directly forward, it appears to run down in a straight course from the last vertebra of the loins, on the foreside of the os sacrum, all the way to the os coccygis." (*An Anatomical Exposition of the Structure of the Human Body*, English version, by Douglas, vol. ii, p. 148, 4to, London, 1732.)

Mr. Fyfe says: "The rectum has its name from its being the straightest of the intestines." (*A Compendium of Anatomy*, vol. ii, p. 221, 8vo, Edinburgh, 1819.)

Sir Charles Bell says: "Drawing aside the intestines which rest in the hollow of the pelvis, you find the great gut (rectum) continued down from these convolutions directly, as its name would imply, to the anus, before the sacrum, and inclining to the incurvation of that bone." (*A System of Dissections*, vol. i, p. 64, 16mo, Baltimore, 1814.)

It is quite amusing how some of these authors by their ingenuity and logic endeavor to make a crooked line straight; indeed, some of their descriptions and definitions are just about as luminous as a piece of white chalk in a dark room.

It is very evident that the term *rectum* conveys an erroneous idea of the terminal portion of the intestinal canal, and that it is well calculated to lead to incorrect opinions respecting its direction, as well as to give rise to serious errors, both in the diagnosis and in the treatment of some of its diseases, as well as in some of those of the contiguous organs. It is therefore a misnomer, being neither correct nor appropriate, and should be expunged. Although this is true, yet the profession, by custom, which is said to be law, has sanctioned its use for so many centuries that it would seem useless now to attempt any change, for it is improbable that such a change would ever be generally adopted. A number of years ago Professor Alexander Monro, *tertius*, of Edinburgh, made such an attempt by substituting the term *curvum* for rectum. But, instead of the new name being received and adopted, it, together with its author, was generally ridiculed, of which the following paragraph in the *London Medical Gazette*, vol. i, p. 168, will serve as an example: "The Edinburgh students well know that Dr. A. Monro, *tertius*, the present professor of anatomy in that celebrated school, rather prides himself upon his discovery that what the less accurate nomenclators have styled the rectum is in fact the *curvum*. In his *Outlines of the Anatomy of the Human Body*, vol. ii, p. 140, 8vo, Edinburgh, 1813, he heads the description of that part of the human frame thus: *Intestinum curvum*, commonly called *Intestinum rectum*, and then proceeds to give his reasons for the alteration. Sorry as we are to blight any of the learned doctor's laurels, yet we can not in justice withhold our opinion that Horace has anticipated the grand discovery, as every one must acknowledge when they refer to the following line: 'Scilicet ut possum curvo dignoscere rectum' (Horatii *Epistolæ*, lib. ii, epist. 2.)"

The writer will now briefly give a description of that part of the intestinal tube called rectum, only so far, however, as it relates to its position in the pelvis, its commencement, its termination, its length, its direction, its form, its capacity, its relations, and its divisions.

Anatomical Description.—That portion of the intestinal canal named *rectum* occupies the posterior part of the pelvis and is continuous with the sigmoid flexure of the colon. It commences at a point horizontal with and quite contiguous to the left ilio-sacral symphysis, and it terminates at the anus. Its length in full-grown subjects, taking the standard of the human body at from five feet eight inches to five feet ten inches, varies from about eight to ten inches. The form of the rectum is cylindrical at its commencement, and indeed throughout a considerable portion of its extent; but toward its inferior extremity, however, it becomes large and saccated, forming a terminal pouch, which is dilated and flattened from before backward, and the mouth of which is closed by the internal sphincter muscle, like a purse. The size of the rectum for some distance is nearly continuous with that of the sigmoid flexure of the colon, but differs from the other portions of the intestines by becoming wider in its downward progress until it reaches the superior margin of the internal sphincter muscle. From its commencement on the left side, at the superior opening of the pelvis, it is directed from above downward, and at first a little obliquely from left to right, descending into the pelvis along the anterior surface of the sacrum for about five inches, and occasionally undergoing in some subjects slight lateral inflections, until it has arrived at the median line of the body, at a point opposite the junction of the third bone and the fourth bone of the sacrum, adapting itself during its downward course to the curvature of the bone over which it has to pass. From this point it is then directed obliquely from above downward and from behind forward for about three inches, still in the median line, to the extremity of the coccyx and on a level with the prostate gland. Finally, from immediately below the level of the prostate gland it is directed obliquely from above downward and a little from before backward for about an inch and a half, to terminate at the anus. It is thus shown that the rectum is not straight, but decidedly curved, both in the antero-posterior and in the lateral direction.

The writer believes it important here to observe that, in consequence of the reversed position of the abdominal viscera in some subjects, the rectum commences and descends on the right side instead of on the left. Such instances, however, are quite rare. Meckel says: "Sometimes the rectum descends into the pelvis on the right and not on the left side of the sacrum." (*General Descriptive and Pathological Anatomy*, Doane's English version, vol. iii, p. 272, 8vo, Philadelphia, 1832.)

M. Cruveilhier remarks: "There are some important varieties in the curvature described by the rectum; thus, it is not uncommon to see the upper part of the gut twisted like an Italic *s* before reaching the median line, and in this instance it is difficult to determine whether the twisted portion belongs to the rectum or to the sigmoid flexure of the colon. In several of the cases of unnatural position of the sigmoid flexure which I have already mentioned the rectum commenced on the right side of the base of the sacrum and passed downward and toward the left side. In one case where the sigmoid flexure was in its natural position the rectum passed almost transversely to the right side as far as the right sacro-iliac symphysis, and then proceeded very obliquely to the left side. The situation of the upper part of the rectum, on the left side of the median line, has often been quoted in explanation of the relative frequency of inclinations of the uterus to the right side, and also of the greater or less amount of difficulty in parturition, according as the occiput of the fœtus is turned toward the right or the left." (*The Anatomy of the Human Body*, Pattison's English version, p. 337, imp. 8vo, New York, 1844.)

Position of the Rectum in Newly Born Children.—With regard to the position of the rectum in new-born infants, M. Huguier, in commenting upon the difficulty that sometimes exists in passing the cannula in the operation for artificial anus, observed that, in the fœtus at full time, the rectum was not found on the left but on the right side. He has especially observed this in respect to females, in whom the rectum corresponds with the right side of the womb, while at a later period it will be found on the left side. (*Gazette des hôpitaux*, No. 71, Paris, 1848.)

Divisions of the Rectum.—The rectum, for better elucidation, may be distinguished into three divisions—a *superior*, a *central*, and an *inferior*—the three main curvatures which the organ describes in its downward course being made the foundation of these natural divisions. Each division is distinct in its situation, in its structure, and in the nature and importance of its connections with regard to the several organs in the pelvic cavity. Their several relations vary in the two sexes, and an accurate knowledge of them is of the highest importance in a surgical point of view.

Superior Portion.—This portion of the rectum extends from the commencement of this organ, at the inferior extremity of the sigmoid flexure of the colon, to the junction of the third bone and the fourth bone of the sacrum, just where the organ leaves its peritoneal investment to curve below the bladder. It is about five inches long, being the largest portion, and of about half the length of the whole organ itself. In its direction downward, as has already been noticed, it describes a curve the convexity of which is turned backward and corresponds to the sacrum. Anteriorly it corresponds to the posterior surface of the bladder in the male, and to the uterus and a small portion of the vagina in the female, and in both sexes to a fold of the ileum lodged in the intervening *cul-de-sac.* It is tortuous, smooth, and loosely attached to the left half of the anterior surface of the sacrum by a short fold of the peritonæum, the *mesorectum.* This portion of the rectum might, with great propriety, be termed the *peritoneal* portion, because of its being completely invested by this membrane.

Central Portion.—This portion commences where the rectum leaves its peritoneal envelope and begins to pass below the bladder. It is about three inches long, and its direction is obliquely from above downward and from behind forward, slightly curving in the same direction, the convexity bearing upward. It is fixed and immovable, and always corresponds anteriorly to the vagina in the female; and in the male to a small portion of the posterior part of the bladder, from which it is separated downward and outward by the seminal vesicles and vasa deferentia, and lies in close relation with them. Toward its termination it corresponds to the prostate gland and the commencement of the membranous portion of the urethra, and is in contact with them. In the female it is very intimately and firmly connected to the vagina by a vascular network constituting the recto-vaginal sæptum; but in the male it is but loosely connected to the base of the bladder and prostate gland by a layer of cellular tissue of a soft and lax character. It differs quite materially in its organization, structure, and attachments from the superior or free portion, and in being destitute of the peritoneal covering, except a small portion on the upper part of its anterior face, over which the peritonæum is sometimes extended when the bladder is empty.

Inferior Portion.—This portion of the rectum commences at the extremity of the coccyx and terminates at the anal orifice. Its length is about an inch and a half, and its direction is obliquely downward and backward. This last inflection separates it from the urethra in the male and from the vagina in the female. It is of greater capacity above than below, and is surrounded by dense adipose cellular tissue, except at its upper extremity in front, where it is closely attached to the prostate gland. In its lower three quarters it is completely invested by the sphinctores ani. This portion of the rectum might with great propriety be termed the *anal* portion, or *anal canal.*

The writer considers it important to remark here that Mr. Treves, surgeon to and lecturer on anatomy at the London Hospital, in his late highly valued contribution to the anatomy of the intestinal canal, does not recognize the superior portion of the rectum as a part of it; but says it should be considered as the inferior portion of the descending colon; consequently he limits the rectum strictly to its central and inferior portion. (*The Anatomy of the Intestinal Canal and Peritonæum in Man*, p. 60, 4to, London, 1885.) The argument of Mr. Treves, however, in favor of removing this old landmark is, in the opinion of the writer, scarcely sufficient to justify the change. Now, from what the writer has adduced in relation to a part of the anatomy of the rectum, it will be perceived how highly important and necessary it is to pay particular attention to the position, the direction, and the relations of the rectum, as anatomical facts from which important practical deductions of the greatest interest to surgery and to gynæcology may be derived.

The Ancient Anatomists. — The writer, in conclusion, can but briefly, for want of time and space, refer to the question, Were the ancients ignorant of human anatomy? This question many of the moderns have answered in the affirmative, as has been previously shown. They declare that the ancient anatomists described and named the parts of the human body as they found them in certain animals, their dissections having been solely confined to such. This, in the opinion of the writer, does the ancient anatomists great injustice, and it does so especially to Galen, who was one among the ablest and most distinguished of them, and whose anatomical writings prove positively that his many dissections were of both human and animal bodies, and that he was also a comparative anatomist of the highest order. The mind of the learned and intelligent reader of his several books on anatomy will be most forcibly impressed with the conviction that his observations of man were chiefly derived from man, and only from animals for the very laudable purpose of comparative anatomy. And, furthermore, if all of Galen's productions on anatomy are strictly read in connection, they impel us strongly to the belief that dissections at and even before his time were far from being confined to brutes only, but were intimately associated with human anatomy.

Galen, in one of his books on anatomy, says that the whole form or figure of the body, both human and animal, depends upon its osseous structure; and he further says that of all animals, the quadrumanous animal, the ape, in his bony fabric, his internal conformation of viscera, of muscles, of arteries, veins, nerves, etc., bears the strongest analogy to man. (*De anatomicis administrationibus*, lib. i, cap. 2, 8vo; *Galeni opera omnia, græce et latine, a Gottlieb Kuhn*, Lipsae, 1821–1833.)

Now, the question may here be asked, How could Galen have demonstrated this analogy between man and apes so minutely as he has done if he had not equally made dissections and comparisons of both? Indeed, the anatomical works of this wonderful man prove his descriptions of the human body, as far as they go, to be models; and they also positively prove that he was on the very verge of demonstrating the complete circulation of the blood, the most important and interesting discovery in medical science. (*Op. cit.*; *De usu partium corporis humani*, lib. vi.)

For many centuries Galen's reputation as an anatomist of the highest order had maintained itself unrivaled and, with but few exceptions, undisputed. The only eminent and distinguished anatomist who called in question Galen's anatomical reputation was Vesalius, who made the remarkable assertion that Galen's descriptions of the human body were chiefly taken from brutes, and were not to be relied upon, etc. (*De humani corporis fabrica*, 12mo, Parisiis, 1560.)

Vesalius, however, in consequence of his very severe and presumptuous attack upon Galen, brought down upon himself a well-merited rebuke and castigation at the hands of some of the ablest anatomists among his contemporaries, who boldly charged him "of ignorance of Galen's writings, of want of honor, of vainglorious self-assertions, of plagiarism, and of never mentioning Galen unless to find fault with him," etc.

Among a few of the most distinguished authors who made these courageous accusations against the dishonest conduct of Vesalius may especially be named the following:

Sylvius, his teacher, was one of his most bitter opponents, and wrote a pamphlet against him. (*Sylvius Vesani calumnias depulsandus.*)

Eustachius, one of Vesalius's great colleagues, opposed him. (*Opuscula anatomica*, 8vo, Delphis, 1726.)

Falloppius, another distinguished colleague of Vesalius, was also found in opposition to him. (*Observationes Anatomicæ*, 8vo, Venetiis, 1562.)

Picolhomini, an able anatomist, was very severe in his censures of Vesalius. (*Anatomica prælectiones explicantes mirificam corporis humani fabricam, etc.*, p. 207 *et seq.*, folio, Romæ, 1586.)

Jenty, an able professor of anatomy, was also one of the severe opponents of Vesalius. (*Historical Compendium of Anatomy, prefixed to Lectures on Anatomy*, p. 94, folio, London, 1757.)

Some of the most ardent disciples of Vesalius, after entirely failing to find any evidence in the anatomical writings of Galen to prove that he did not dissect human bodies, resorted to the evasive argument that the laws, customs, and opinions of the Greeks and Romans, with respect to the dissection of dead human bodies, were of such a character that no one would dare to use such for such a purpose; consequently neither Galen nor any of the other ancients could ever have dissected human bodies.

M. Le Clerc gives at some length what has been said *pro et con* of Galen's anatomy of the human subject. (*Histoire de la médecine*, 4to, Amstelœdami, 1702.)

In our own country no one has written so much and so ably to establish the true status of Galen as a genuine man, a physician, a surgeon, and an anatomist of the first rank, as the late learned Professor John Redman Coxe, M. D., of Philadelphia. (*The Writings of Hippocrates and Galen: epitomized from the Original Latin Translations*, imp. 8vo, Philadelphia, 1846.)

The writer will now conclude with the very just and eulogistic remarks paid to Galen by the late eminent and highly distinguished professor of anatomy, Alexander Monro, *primus*, of Edinburgh, who always declared that no one ought to assume the honor of any discovery in human anatomy until he was certain that Galen had not mentioned it. (*MS. History of Anatomy*, in the Edinburgh Anatomical Museum.)

7 West Forty-fifth Street, *September 19, 1891.*

MASSAGE:

ITS PRINCIPLES, VARIETIES, FACTORS, AND ADAPTATIONS.

By GEORGE H. TAYLOR, M. D.

The resources of mechanico-therapeutics and its applicability in chronic affections are by no means exhausted in the statements of principles and practice shown by the writer in the April 24th and July 4th numbers of this journal. Even more valuable adaptations of the same remedial agent are available for physicians inclined to investigate this department of medical practice. Not only abdominal and pelvic, but numerous other forms of chronic suffering, local and general, have been and may be successfully treated by careful adjustments of this class of remedies. Mechanical remedies in the sense implied in these articles are agents of power; and misconception of their physiological and pathological relations easily leads to their misapplication. It is therefore important that their nature and effects under the different circumstances presented by disease be carefully investigated, to avoid errors and secure the advantages this class of resources is capable of affording.

The department which seems next to invite attention has been used to some profit, although in fragmentary manner, under the name of *massage.* The processes coming under this designation appear simple only because their varieties and adjustments to varying and diverse pathological states are not well understood. It therefore becomes necessary, first, to consider the nature of the factors of massage, so as to determine the suitability of each of these for correcting certain morbid states of the vital system and its parts.

Massage is popularly understood to be *pressure with motion* imparted to the person of an invalid for remedial purposes by the hands of a competent individual, hence called an operator or *masseur.* In its ordinary application the *direction*, *degree or force*, *extent*, *time*, *rate*, and other particulars which are necessary factors of the process, are left to chance and receive little or no consideration, as though of no value. But, since these are susceptible of almost unlimited varied proportions to each other, it is clear that either may preponderate and, by giving character to the process, may greatly influence, or even control, the physiological effect, and therefore its suitability as a remedy. For example, massage may be confined to any special region or location; may be slow or quick; superficial or deep; prolonged or short; applied to chest, abdominal viscera, muscular parts, or skin; may give precedence in order of processes to any particular part or functioning department; and in each case its suitability for a given case may vary from perfect adaptation to extreme unfitness and even hazard. Massage, to be entitled to the appellation of remedy, must therefore comply with the varying needs of chronic infirmities.

We may now follow the combination of pressure and motion from the hand of the operator, and note what becomes of it in the vital organism of the patient. For purposes of identification, we may call it *motor energy*—energy in the motor form. Motor energy is transmitted to the vital tissues and the fluids which pervade them in the form of *waves*, whose length and depth are determined by the amount of pressure and extent of motion the hand affords. But it no longer remains motor energy; neither is it lost or even diminished, force or energy being in its nature indestructible. It simply assumes other forms, which, together, are the exact equivalent of that transmitted, and which has its source in the mechanico-vital tissues of the operator. The changes of form are wrought by qualities which inhere in the receiving medium, and are partly of the physical and partly of the vital or *function-performing* order.

The motor area is a blended mass of vital and non-vital, fluid and semi-solid, elastic and non-elastic, stable and unstable ingredients. Each of these is enriched by an accession of energy, which each disposes of in accordance with its differing physical constitutions and relations. The new accession of energy assumes the form, merges with, and thus re-enforces that pre-existing in whatever part receives it. The additional energy derived from exterior sources reappears in cognizable form in the physical phases of function, contributing to the highest physiological purposes of the organism. We will next see just how manual massage becomes therapeutically useful.

The *pressure* or compression of the hand displaces the fluids under it, whether these be vascular or interstitial. Following lines of least resistance, these fluids are urged along channels anatomically provided; the pressure therefore merges with the natural impulse which impels blood and other fluids, and removes both functional and mechanical impediments, whose presence detracts from health. Massage supplies motor force to render the physiological impulse equal to its purposes.

When some degree of adhesion exists between surfaces of objects, however minute, if impelled at different rates of motion, resistance, in the form of *friction* and of *elasticity*, appears. At the same time the motor energy expended is freely transformed to heat energy, as when two sticks are rubbed together, or a piece of rubber is stretched. The vital organism is an extensive area for this mode of transformation, and its operation is constant. The physiological provision for disposing of excess of heat renders its morbid accumulation from this cause improbable, perhaps impossible.

The forcible contact and collision of the minutest ingredients of the organism is an inevitable consequence of the reciprocating form of massage. The endings of the motory excursions are comparable to blows of infinitesimal hammers. It follows that the minutest components of the motory area suddenly receive accessions of energy, quickening and increasing that previously inhering therein. The diverse elemental parts are affected by this cause in varied degrees. The free oxygen present readily participates in the new influence, and rearrangements of atomic constituents or *chemical* changes are rendered inevitable. The new chemical products contain more oxygen and are more stable; at the same time energy in some form has been liberated.

The absorption of motor energy for the purpose of converting unstable organic ingredients of the organism to stable chemical forms appears to be a leading purpose of the physical plans of animal life. In health the spontaneous introduction is sufficient to secure this end. But transmitted motor energy or massage, in case of insufficiency consequent upon ill health, supplies the defective chemical energy, and the vital organism is enabled to imbibe the oxygen required to neutralize and discharge ingredients which would otherwise immediately become prejudicial and noxious.

It is hence apparent that the ordinary changes of composition of nutritive ingredients in their progress in the vital organism depend very much on the motor energy coincidently developed therein. The chemical phase of physics secures the innocuousness and final dismissal from the system of all its superfluous ingredients of whatever quality, even though such quality may have been the consequence of such adverse circumstances as have lessened the usual predominance of chemical activity, and even though deteriorated chemical products may have accumulated to a considerable amount.

Judging from the usual character of ordinary remedies, *chemical* energy is what is chiefly expected of them. The relations which drugs sustain to the morbid function, and especially to morbid effects and products, is the leading consideration in their selection—that is, in therapeutics. Traditional medical practice therefore yields its tacit approval to the chemical phase of massage. And this is not all. The medical profession has always freely used changes of temperature (heat-making) in its most convenient forms as a remedy, and in modern times frequently employs electricity, which is well known as an equivalent, derivative, and convertible form of motor energy, for the same purpose. These facts appear to countenance and even afford cumulative approval of the remedial use of direct adjustable supplies of the same agent through massage.

The ultimate purpose of all remedies is simply to support the *vital* manifestations, and coincidently to remove impediments thereto. By vital manifestations is understood the growth of organic structures, their reproduction in compensation for their waste; and more particularly the support of those changes in organized tissues from which proceed the special forms of energy which characterize the individual—namely, the varieties of *nervous* and *muscular* power.

These vital forms of energy are the product of *vital cells* and the result of the complex processes of *nutrition.* The direct purpose of the physical modes of energy into which motor energy is plainly resolvable is to provide the conditions indispensable for nutrition. Motor energy transfers ingredients to and from the vital cell; heat at an unvarying standard is indispensable for the required transformations, while chemical energy steps in to diminish the latent store of the vital cell, which, liberated, assumes the form impressed upon it by its organic instrument or tissue.

The nature of the assistance which massage affords to the struggling purposes of the organism through its influence on the changes due the contents of the vital cell is therefore fairly intelligible. This recourse compensates in a manner for faulty preceding conditions. Very prominent among causes of defective health are faults of spontaneous physical activities. Some parts and some functions are overworked, others are insufficiently active. Massage supplies action in default of auto-action. By the latter the different forms of cell life, however diverse in function, are benefited in equal degree, so that pre-existing relations of function are preserved. This is health. Ill health is a proclamation of differences, so that the necessary balance of functions is lost. The nutrition of important parts—as, for example, the respiratory or any other special mechanism—declines, and objective local consequences necessarily appear, demanding redress of therapeutics.

Now, massage acquires its value, which is truly remedial in distinction from hygiene, by its *adjustability*, by which it becomes adapted to diverse and often opposing pathological conditions, even when these have attained an extreme development. These apparently opposite effects are attainable by giving judicious preponderance to one or another of its separate and distinct factors. For, as before shown, massage is a *composite* agent. It unites pressure or *force*, which is susceptible of great variability, with *motion*, whose *rate* or velocity also admits of infinite variations. The factors largely controlling the effects of massage—that is the modification into which its energy may be transformed—are therefore those of *degree* or force and *rate.* Massage is susceptible of specialization to the extent of the variability of its factors.

It is important that the adjustments of massage whereby contrary results of a curative nature are secured be clearly apprehended. To illustrate the principle stated, let it be supposed that the living body is composed of strata or layers from the surface inward. If compressed by the hand (as in massage), the anatomical parts immediately beneath it become bound by the increase of adhesion into a uniform mass. The hand makes short motory excursions, and the whole mass moves with it, while the component parts fail to move upon each other. All molecular intermotion is effectually prevented; no physiological effects of the transmitted motion are possible in the compressed area. The massage process reaches the stratum beyond where the diminution of compression permits the anatomical constituents to glide upon each other. Here, and *here only*, is the communicated energy converted into its physiological equivalents and uses.

It follows from this mechanical explanation that by dexterous application of the massage process its factors may be rendered available for any locality, whether superficial or deeply seated; and that for massage purposes the seats of important functions may be practically isolated, while other parts are in suspense and negation.

It is equally feasible to address massage to any specially *function-performing* tissue by adjustments of the methods so as to impart, or to withhold, its normal incitation. The activity and nutritive support of one function may be used as the means of withholding nutritive support of morbidly competing functions. Thus muscular power arising from nutritive incitation of muscle cells, or nervous power arising from appropriate nervous centers, may either of them be incited and nourished at will *at the expense of the other.*

An illustrative example will render clear the principle stated. Massage with *least* pressure is confined to the surface; the motion traverses the sensory and reflex nerve endings or loops situated in the skin, and *no effect* is produced in subjacent tissues. The necessarily preponderating effect of this class of impressions is to cause nutritive changes in the nerve centers, which are the source of sensory and reflex nerve energy, while but little advantage accrues to muscles. Persistent incitation of sensory nerve centers, however effected and for whatever purpose, is sure, ultimately, to produce a morbid supremacy of the nervous function and to destroy the natural equipoise that obtains in the healthy organism. For example, if the *fauces* are touched with a feather, or if the finger tips are passed lightly over the bared sole of the foot, or other parts abundantly supplied with nerves, the senses are inordinately impressed and reflex action comes immediately to the rescue of the assaulted part. Violent spasms accompany the too intense sensibility. In case of inordinate irritability, constitutional or acquired, serious ills may follow, especially should the power of the sensory centers be made to increase by undue and morbid cultivation. It is readily seen that no corresponding nutritive effects are superinduced by these and similar impressions in the sources of muscular power.

If, however, the pressive factor of the process be made to predominate, the physiological effects are reversed. The nerve endings in the skin are *not traversed*, the skin moves along with and to the extent of the hand; more deeply seated anatomical structures are reached and the nutritive consequences inure to the advantage of the muscular structures and those associated therewith, while the nervous powers are in complete abeyance, functionally and nutritively. Massage therefore presents a practical method of solving one of the most difficult problems with which the physician is called upon to deal—namely, that of redressing the morbid relations of the two great energy-evolving tissues—the muscles and the nerves. This recourse has always been regarded as invaluable for increasing development of defective parts, and "gymnastics," "Swedish movements," "localized exercises," are well-known means of securing this end. It is now seen that *by giving prominence and force to an isolable factor* of massage, similar results are secured in regard to *function-performing tissues* whereby ineffective function may be raised to its normal state, and the relative excess of counterpoising function at the same time corrected. In this way erring functions are remedially caused to acquire the natural counterpoise indispensable to health.

The other property of massage susceptible of acquiring physiological preponderance and thereby therapeutic value, and which demands separate consideration, is that of *rate.* By rate is meant the number to the minute of motory excursions or vibratory waves to which the vital parts are subjected by the massage process. *Rate* relates only to time, and is distinct from the extent of the motory excursion.

The question of the *rate* of massage processes is of leading importance, inasmuch as this factor largely determines the nature of the transformation of motor energy, and, consequently, the physiological effects superinduced. It has been shown above that, whether transmitted to or having its source within the vital organism, motor energy is resolved into its equivalents, and, besides, mechanical propulsion of fluids, abundant heat, and chemical action are developed.

We are now prepared for the statement that the relations these secondary forms of energy sustain to each other depends largely on the *rate* of the process. The higher the rate, the greater the resolution into the chemical, and the less into the other forms of energy, and contrariwise. Convincing evidence of the correctness of this statement will subsequently be given. The practical conclusion is that while the *lower* rates or slow massage are efficient for promoting general nutrition and development, the higher rates of reciprocating action, or vibratory motion, are efficient in promoting the *chemical* phase of physiological activity. The one supplies nutritive ingredients to the vital cell, promotes respiration, and circulates the blood, while the other applies oxygen to organic uses, and resolves unstable ingredients into exit products; the higher the rate of massage (within certain ill-defined limits), the more searching and efficacious is this latter effect.

At this point the therapeutic world is confronted by an embarrassing lack of experience and knowledge; for other rates than those natural for the hand of an operator to supply are scarcely conceived. The vast outlying area, both above and below the narrow line of human capability, invites exploration.

The rates of manual massage are but very slightly, and at most but transiently, controlled by the operator or masseur, but by universal law. The limbs in action necessarily *beat time* as inevitably as the swing of a pendulum. This is because the predominating force engaged is *gravitation;* the constancy of this force ultimately compels the muscles to act synchronously with it, spite of opposition of the will. The operator quickens his actions at the expense of his motory and nervous resources; these failing, suspension of endeavor quickly follows. A quickened rate of manual massage defeats its purpose to communicate the motor form of energy—action ceases before effects can rise to an appreciable extent.

Similarly, lower rates than those fixed by physical law are difficult to execute by the hand, because of the control of the same law; and though the operator's resources may be prolonged, the process is brought to an early and generally ineffective end, for unnaturally slow motions require fatiguing restraint by the will and superinduce nervous depression, and effort is thereupon suspended.

The actual time-rate of the extremities in ordinary, well-sustained occupations is not, in general, far removed from that of a pendulum beating seconds, and accords with the rhythm of the arterial system. Extreme deviations from such rates are necessarily transient. When, therefore, a masseur writes or talks about his practice of more rapid rates, it is in depreciation of the value of his performance. He is powerless to surmount Nature's barriers in the way assumed.

These considerations naturally lead to inquiries respecting the vast outlying field of rates and degrees of motor energy, extending below and above the narrow scope of the operator. It is interesting to inquire whether in this limitless extension there be rates of motor energy which are legitimately of medical service. Any desired extension of scope of motor energy is attainable by the aid of mechanical adaptations and contrivances. In the pursuit of this purpose science affords close analogies, for, by the aid of mechanical contrivances, the universe has been enormously extended and unfolded to our observation, and its exploration goes on. We have been shown that what to our senses are the far differing phenomena of light, heat, electricity, motion, and other forms of energy, are but variations of *rate* and *degree* of essentially the same thing—differing forms and conditions, *modified* by *material agents,* of wave-like or vibratory motions. By the aid of appropriate apparatus, we may also investigate the consequences of vibratory or wave-like motions, at their different rates, when transmitted to the complex components, vital, and non-vital of the organism, and learn what we may of the laws governing this procedure, and the objects attainable thereby—matters which are as a sealed book to those whose observations have been limited to the degrees and rates of motor energy which emanate from the masseur.

We may next turn attention to the physiological and remedial effects of massage whose rates are *below* those of which the human hand is capable; and to the adaptation of these to special forms of disease of the abdominal and pelvic contents.

"**Europhen** is the latest of the iodoform substitutes; chemically speaking, it is isobutylorthocresol iodide. The method of preparation patented by the 'Farbenfabriken' is as follows: Orthocresol is made to react with isobutylalcohol at higher temperatures in the presence of zinc chloride, forming isobutylorthocresol; this in alkaline solution is mixed with an aqueous solution of iodine and potassium iodide, the new compound separating as a yellow, amorphous precipitate which after washing is dried in the dark. It then contains 27·6 per cent. iodine, a proportion indicating one atom iodine in combination with two molecules isobutylcresol, and has the composition $C_{22}H_{31}O_2I$. The powder adheres firmly to the skin; has an aromatic odor; it is insoluble in water and glycerin, but soluble in alcohol, ether, and chloroform, hence in collodium and traumaticin; it is also soluble in fixed oils (a 25-per-cent. solution can be obtained in the cold by trituration); in these various solutions iodine is slowly liberated, especially in the presence of a little water; this possibly explains its efficacy due to the nascent iodine. Owing to this decomposition it should not be prescribed with starch, metallic oxides (zinc, mercury), or mercurial salts; made into ointments with fat, vaseline, or lanolin, it can be kept for considerable periods; the last named is the one to which preference is given."—Dr. F. Goldmann, *Pharm. Ztg.; Am. Jour. of Pharmacy.*

THE USE OF PYOCTANIN,
AN ANTISEPTIC,
IN DISEASES OF THE UPPER AIR-PASSAGES.*

By R. P. LINCOLN, M.D.,
NEW YORK.

THE question has often been proposed, Why do we find so much more work to do in the nasal passages than formerly? This thought is especially emphasized by inspecting the list of papers offered at this meeting of our association.

It is true we not only attempt, but we accomplish, much more than we thought possible ten or even five years ago. The explanation is not that naso-pharyngeal affections are more common now, not that we did not recognize abnormities that we now attack with confidence, but it is that we have learned, from our own and the experience of co-laborers in the same field, that we can with impunity almost undertake operations the possible unpleasant consequences of which were greatly magnified and acted to effectively deter us.

We are further encouraged not only by the primary and immediate relief that follows many operations, but also by secondary advantages, sometimes even general, that are often of greater importance than the removal of the local trouble.

The advantage from the use of cocaine has greatly facilitated our operations. But the element that has contributed not the least to our success and to extending our achievements is the discoveries and improvements in antiseptics.

In determining the utility of a drug and defining its uses, we aim not only to restore the ailing, but to fortify our patient against the liability to disease; and it must be remembered that every application of such knowledge becomes an important experiment, either yielding confirmation of or casting doubt upon some hypothesis not yet crystallized into acknowledged doctrine. Evolution in our art is being rapidly developed. The almost countless new remedies or substances that the diligent chemist or the indefatigable herbalist is constantly presenting to us for testing make it impossible that any one person or school should definitely pass judgment on them all. To prove the cause of an effect in even one instance is a contribution to this end. A contribution toward the solution of any such equation is work in the direction of ameliorating or curing disease. Cherished fallacies that often sway the laity must be guarded against by the investigator; such is the idea, prominent in the public thought, calculated to mislead because not consistently discountenanced by the profession, that remedies heal—that certain atmospheres, for example, heal the diseased mucous membranes.

The healing process is from a higher power and pertains to the germ of our growth, intrinsic. At war with this are extrinsic elements. The air, I repeat, does not heal, but some atmospheres contain fewer disease-promoting germs than others. To destroy those present, to fortify our patient against their deleterious effects, is, then, one of our objects.

Further, we must not lose sight of the fact that man never manufactured living tissue. Our aim must be to assist Nature. This, in surgery, we do in three ways—by coapting solutions of continuity, by removing obstacles, and by shielding a fresh or granulating surface from bacteria prejudicial to its healthful progress. In nasal surgery unexpected constitutional symptoms occasionally present themselves that we recognize as due to septic poisoning. I think the practice is not yet definitely settled on the point whether the nostrils should be sealed, so to speak, with a pledget of lint after an operation, or whether an effort should be made to keep the passages freely open. Whichever plan is adopted, we must recognize the necessity of an effective antiseptic. We thus see there are so many contingencies that interfere with the theoretical use of remedies, that a true estimate of their value can only be determined by experience, and I apprehend that the efforts of the rhinologist and laryngologist will hereafter find their greatest advantage in studying the action of remedies whose province is chiefly aseptic. There are many that have been used, each with enthusiastic advocates, such as boric acid, antipyrine, bichloride of mercury, iodoform, iodol, aristol, peroxide of hydrogen, and others; but there is one that has been but little tried, but which, from my present experience, seems destined to become a valuable addition to the list.

With the foregoing plea for investigation in the direction of antiseptic methods, I invite your attention to a remedy that E. Merck, the chemist, has brought forward within a short time. I refer to pyoctanin, the methyl-violet. The efficacy of the remedy seemed so pronounced in the limited number of instances where I have used it that I hope to elicit observations by others and hasten the determination of its place in our pharmacopœia. Whatever be the final verdict, I am convinced it has merit, and I now recognize but one disadvantage.

For the convenience of any that may not be familiar with its attributes, I compile here the essentials of whatever I have been able to find on the subject, and also present some samples. Pyoctanin is a chemical preparation of the class of aniline colors, there being two kinds, the blue and the yellow, the former, according to Pohl,* having the greater germicidal power. It is offered in the market in the form of powders, tablets, and sticks. It is odorless, almost tasteless, non-poisonous, slightly anodyne, and non-irritating. It does not coagulate albumin, has great penetrating and disseminating power, and hence does not form a protecting shield about diseased germs. It destroys bacteria quickly; even a weak solution prevents the development of all micro-organisms. It is freely soluble in water and petroleum products. Its disadvantage is its staining quality, which is an offense to the sight, but which can be avoided on exposed parts by exercising reasonable care.

It may be used without unpleasant consequences in any degree of strength, from the pure substance to a weak solution. It can be applied to the part to be treated in the form of a spray, by means of a pledget of lint saturated with a solution, in the form of an ointment, as a powder or by crayon.

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* Read before the American Laryngological Association at its thirteenth annual congress.

* W. Pohl, Darmstadt. 1891.

Its Method of Action.—W. Pohl,* of Berlin, reports in his inaugural thesis the results of the study of the effect of pyoctanin on different bacteria. Putrefactive † ones showed the greatest resistance. A solution of the strength of 1 in 2,000, however, stopped their evolution, while a solution of 1 in 1,000 killed them in half an hour. It is found by increasing the proportion of the chemical that this action is hastened. The rapidity of this action on all other micro-organisms is much greater. Janicke ‡ showed that a total stoppage of development took place in streptococcus with a solution of 1 to 333,000, whereas a solution of 1 to 5,000 killed it in half a minute.

Professor Stilling,# who appears to have been the first to have introduced and systematically experimented with pyoctanin, applied a strong solution to the eyes of his patients without much discomfort.

Bresgen,‖ who was the first to systematically use pyoctanin in the nose, noticed a distinctly anodyne faculty on its being applied to the mucous membrane.

Thus we learn that while its effect varies much in degree with the strength of the remedy, we need not be deterred, by fear of pain or too much irritation, from a free use of the substance, undiluted if it seems indicated, when we wish to destroy suppuration or prevent it if impending.

When used in solution it is said that it is best to keep it in colored glass and have it freshly prepared every three or four days. My own observations date from July, 1890. One of my first cases, which was as follows, seemed to me at that time most remarkable:

> The patient was a well-nourished single woman, thirty-five years of age. About a year before I had operated upon her for an abscess of the left frontal sinus, the early effect of which trouble had been most serious. At the operation the necrosed outer wall was in large part removed—as much, in fact, as seemed justifiable, yet not completely, so that small pieces were removed with forceps, curette, etc., for a period of several months following. A style was worn for a long time, and injections of various remedies were frequently made through the external opening into the nostril. In fact, the patient herself operated this method successfully. Notwithstanding the many different remedies thus applied for months, after all evidence of necroses or caries had disappeared some suppuration continued, with slight swelling and redness of the upper eyelid. It was not till after I had made a few injections of a ten-per-cent. solution of pyoctanin in water that a new impetus to the healing process began which was speedily completed. In less than three weeks, the strength of the solution being gradually reduced, all discharge, either external or through the nostril, ceased, and the patient was relieved of a trouble that had caused physical and mental distress for nearly two years.

While this patient was under treatment I had an opportunity to use the remedy in a case of suppuration of the antrum with equally gratifying results. Four cases of this disease where the suppuration has been pronounced have been relieved more promptly than ordinarily by other methods.* In cases of suppurative ethmoiditis, where I have been able to reach the parts in consequence of some fortuitous malformation especially, comparatively prompt relief has been secured, unless necrosis existed, in which case, after removal of detritus, the disease was readily corrected. Whenever ulceration of the mucous membrane and suppuration are present, I think the remedy most useful. I have seen several instances where there was erosion and unhealthy granulation on the septum nasi smoothed and healed in a short time. The granulations on the border of a perforated septum cicatrize more readily when kept coated with an ointment of twenty grains of pyoctanin with an ounce of vaseline. Like Bresgen,† I have found it useful after cauterizations, but I am not prepared to say, with my present experience, that it has a great advantage over iodol, iodoform, and some other remedies we are familiar with, except for the fact that septic poisoning has been escaped by patients operated on when I have used it. It quickly heals all aphthous ulcerations in the mouth.

It is useful as a local remedy in all acute follicular inflammations, and especially in those chronic follicular diseases of the tonsils and soft palate where we find inspissated mucus often crowded with micro-organisms, as *Leptothrix buccalis*. The effect of a fifty-per-cent. solution applied in instances of this last-named affection is immediately evident to the observer.

I have applied the remedy in but two cases of unquestionable diphtheria. Both recovered without sequelæ. One case was very severe and one only moderately so. In the former, a little girl five years old, the disease began in the right nostril, extended to the left, the membrane gradually involving a part of the pharynx, the whole of the right tonsil and part of the left. Before I used pyoctanin, besides administering internally tonics and chlorate of potassium, I had used locally in the nostrils, one after another, sprays every two or three hours of bichloride of mercury, benzoate of sodium and wine of pepsin, chlorate of potassium, and iodoform. The same had been used in the throat, and here, in addition, a mixture of compound tincture of iodine and carbolic acid. There was great physical depression, but no albumin in the urine. The disease, which must have been present three or four days before I saw the child, continued to increase and extend for three days, when I determined to leave in the nostrils through the night rolls of absorbent cotton saturated with a ten-per-cent. solution of pyoctanin. So much improvement was found the following morning that the remedy was used more freely, and its use extended to all parts involved, with the result that in forty-eight hours all trace of the membrane had disappeared. The other case was an adult, when a strong application started an improvement at once.

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* *Op. cit.*

† Stilling. *Anilin. Farbstoffe als Antiseptica.* Strassburg, 1890.

‡ *Fortschritte der Medicin*, 1890, No. 12, p. 460.

# *Loc. cit.*

‖ *Deutsche med. Woch.*, 1890, No. 24.

* In the *Journal of Laryngology and Rhinology* for September, 1891, I find, in the report of the May and June meetings of the Berlin Laryngological Society, that Cholewa recommends pyoctanin for diseases of the frontal sinus, and Meyer reports two cases of antrum disease improved. In the same report Scheinmann says it can only help when combined with other remedies, and Katzenstein and Herzfeld never saw any effect from it.

† *Loc. cit.*

Three cases of diphtheria were treated in the early summer and encourage me to give the remedy further trial.* Its effect on a single instance of membranous rhinitis was, as should be expected, prompt and salutary, the plastic deposit being quickly destroyed and not reproduced after three or four applications. My experience with the remedy in laryngeal phthisis does not cover a period sufficient to justify me in expressing a conclusive opinion, but I note † that Dr. Capart, of Brussels, presented at the Annual Assembly of Belgian Laryngologists, May, 1891, a case of ulceration and perforation of the soft palate, occurring after an ulceration of the tonsil, in which Koch's bacilli were found, healed rapidly under pyoctanin. He also exhibited two patients with laryngeal tuberculosis in whom the ulcerations had improved under pyoctanin. I have used pyoctanin with most satisfactory effect in both syphilitic and non-syphilitic ozæna. At the present time a child, three years old, with a very offensive, non-specific ozæna, having much tumescence of the nose and frequent epistaxis, is markedly improved after only a week's treatment. Peterson ‡ reports cases of syphilitic ozæna deodorized and cured in a short time by a one-per-cent. solution.

THE TREATMENT OF PUERPERAL SEPTICÆMIA BY CURETTING.

By J. LINDSAY PORTEOUS, M. D., F. R. C. S. Ed.,
YONKERS, N. Y.

UTERINE diseases seem to be very prevalent nowadays, at least such has been my experience during the few years I have practiced in this country. Why such is the case it is not my object now to inquire. I have, both in my private practice and during the period I served as gynæcologist to St. John's Riverside Hospital, endeavored to trace the origin of the cases of endometritis, endotrachelitis, etc., which came under my notice. In nearly all the cases I have been told that the patient had "malaria" after confinement. I venture to say that "malaria" in nine cases out of ten had nothing whatever to do with the chills and subsequent fevers following confinement. The real cause was, undoubtedly, puerperal septicæmia. As the majority of the patients affected are either the poorest or those raised in the lap of luxury, who never exert themselves out of the ball-room more than getting in and out of their carriages, debility plays its part. Any one who has paid particular attention must have noticed that the post-partum uterine contractions in such patients are weak; consequently the blood-vessels do not close rapidly and clots form. Those clots in time decompose and septic influences begin.

So with small portions of membrane which often become detached and remain undiscovered, however carefully the discharged membranes may be examined. Ergot and squeezing the uterus externally may expel the foreign body, and careful irrigation with antiseptic lotions may wash away the *débris* or render the septic poison inert for the time; still, sooner or later, when the patient resumes her wonted vocation, the distressing symptoms of some womb trouble will surely appear. But, as a rule, long ere this period, on the third or fourth day, there is a chill, followed by a rise of temperature, slight pain on pressure over a may be small area of the abdomen, with furred tongue and anxious expression; then we know we have that dreaded enemy, puerperal septicæmia, to battle with. In all such cases of late I have lost no time, but, without hesitation, used the curette, and in every case only a short time elapsed before the temperature fell, and the anxious expression was turned into one of brightness and freedom from anxiety. The mode of operation is much the same as is employed in other cases. The curette I use has a fenestra of an inch and a quarter by seven eighths of an inch on the outer rim to an inch by five eighths of an inch on the inner. The whole length of the instrument is eleven inches, and it is made of polished steel. It is not necessary to be made of flexible metal, nor does the cervix require to be dilated, as at the usual period when it ought to be used the womb has not regained its normal position nor has the os closed. In all cases strictly antiseptic measures must be used. After curetting I wash out with a solution of bichloride of mercury or peroxide of hydrogen, and sometimes insert strips of gauze treated with iodol or aristol.

Surely this treatment is rational. The uterus after delivery must be considered a wounded surface, subject to septic influences. In wounds in other parts of the body how careful we are to remove all sloughing or foreign bodies! Why, then, should we neglect this most sensitive organ, at the very time its raw surfaces act as a sponge to absorb anything in contact with it? Although it has been my lot to attend several thousand confinements, I have always had a wholesome dread of puerperal septicæmia; but now in the curette I feel I have an unfailing ally, which, if used skillfully, will help me out of much trouble.

Since I wrote this paper I have seen an extract from an article by M. Charrier, in the *Archives générales de médecine*, in which he advocates much the same course of treatment.

Medical Orthography.—The Dublin correspondent of the *British and Colonial Druggist* says: "Spelling does not seem to be the strongest point with some of our metropolitan doctors. There is one gentleman in particular, an ex-president of the College of Physicians and a member of the senate of both our universities, who invariably spells dessertspoons with one *s*. By the way, there seems to be much haziness in the medical mind as to how this simple word should be spelled. Since I came to notice it, I always examine prescriptions in which it occurs carefully, and find that the majority of medical men seem to favor the elision of one of the sibilants. Tablespoonful*l* is an occasional medical rendering of a word which commoner mortals are content to spell with a single terminal *l*. It is to be hoped that now when the Medical Council have very properly refused to recognize the rudimentary preliminary examination of the College of Surgeons, medical students will be compelled to show acquaintance with the orthography of at least the commoner English words."

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* Pohl reports nine cases of diphtheria, not selected, treated successfully.

† *Journal of Laryngology and Rhinology*, August, 1891, p. 343.

‡ *St. Petersburge medizin. Woch.*, 1890, No. 24.

A CASE OF POST-PARTUM HÆMORRHAGE.

RECOVERY.

SEVERE HÆMORRHAGE FROM THE CHILD'S NAVEL; AN ACCOUNT OF THE MEANS USED TO CHECK IT.

By GEORGE W. WAGONER, M. D.,
JOHNSTOWN, PA.

On June 27, 1891, I attended Mrs. J. E. O., aged thirty-one years, in her second labor. There had been an interval of seven years between the first and second pregnancies. During the term of the second pregnancy nothing unusual occurred except that she was troubled with a dry, persistent, and harassing cough in the last two months. No medicines had any effect upon the cough except morphine sulphate, of which only an occasional dose of one fourth of a grain was taken at night to enable her to sleep. Mrs. O. is a woman somewhat above the average size, of splendid physical development and perfect health. Her labor progressed normally during the first and second stages. When the expulsive pains had become severe, she insisted on having chloroform administered and the forceps used in order to terminate the labor as soon as possible. The second stage had lasted about two hours, and, although there was no emergency which demanded the use of these means, yet the desire for relief from the agonizing pain was so imperative that the labor was speedily and successfully terminated with their aid. Within half an hour the placenta with the membranes was delivered and the womb contracted firmly. The mother was the happy possessor of a seven-pounds-and-a-half girl baby, and we all congratulated ourselves upon the favorable termination of the labor. Two hours later, as I was entering the house to make my first visit, I met a frightened messenger, who was just starting for me with the alarming intelligence that Mrs. O. had fainted. In an instant I was at her bedside, and found, true enough, that she was unconscious and collapsed. A glance at the pale, clammy face, the dilated pupils, the white lips, the restless, tossing body, told—alas! too plainly—that her life-blood was ebbing away. There was no need to listen to her sighing respiration or feeble heart to enable one to decide that she was on the verge of death. Such a sudden and startling change from health to the awful conditions preceding death may well cause the stoutest heart to falter in dismay. An instant examination showed the hæmorrhage was internal. The woman's head was lowered and the foot of the bed elevated. A hypodermic injection of whisky and aromatic spirit of ammonia was immediately administered, and the husband dispatched to an adjoining drugstore for the fluid extracts of ergot, digitalis, and nux vomica. The hand was immediately inserted into the vagina and a large quantity of clotted blood turned out, while the body of the womb was grasped through the abdominal walls. All this was done in less time than it takes to write it. But still the hæmorrhage continued, and one fainting fit succeeded another. In a few minutes the husband arrived with the medicines, and was immediately sent for Dr. W. B. Lowman. Pending the arrival of Dr. Lowman, a hypodermic injection, containing thirty drops of fluid extract of ergot, was inserted in the abdominal tissues, and a few moments later an injection, containing one drop of each of the fluid extracts of digitalis and nux vomica, with ten drops of aromatic spirit of ammonia and twenty drops of whisky, was administered. Dr. Lowman responded promptly. As he entered the room I was in the act of removing from the womb a clot of blood as large as a fœtal head at term. After a hurried word of explanation, the procedure met with his approval, and he assisted by compressing the womb. The clot was thoroughly removed, and the womb contracted upon the hand as it was withdrawn. The womb remained contracted, and in a few minutes after the doctor's arrival the lady regained consciousness and viewed with astonishment the evidences of commotion about her. The doctor examined the case carefully, and advised that the injections of ergot and the use of the heart stimulant be repeated. This was done, and absolute quiet enjoined. Under faithful attention and nursing, complete recovery ensued without a single annoying symptom. No one, except those who have successfully passed through such a terrifying ordeal, can appreciate the exquisite sense of relief experienced when the immediate danger of death has passed and returning animation promises recovery.

But a more prolonged and vexatious struggle for the life of the child was before us. When it was three days old the nurse called my attention to a slight discharge of blood from the vagina. It only amounted to a few drops on the napkin, but at every change the spot was noticed. A careful and thorough examination of the child could not discover any abnormal condition, except a slight elevation of temperature. Its skin was clear, and it nursed, slept, and had normal discharges as a healthy child should. On the fifth day the cord dropped off, leaving a healthy cicatrix. On the sixth day blood commenced to flow from the cavity of the umbilicus. It was discovered immediately, and means were used to stop it. The flow was continuous and so free that the child would soon have bled to death had the discovery not been made so promptly. Graduated compresses were applied and pressure was made by bandages, but these were soon found to be ineffectual. The compresses were then saturated in Monsel's solution and kept in place by long strips of adhesive plaster. But the blood had lost its coagulating quality and the dressings soon became saturated and had to be removed. A few hours' trial indicated that compression would not do more than retard the hæmorrhage. The umbilical cavity was then filled with powdered Monsel's salt, and over this a compress was applied, held firmly in position with the strips of plaster. This proved to be a filthy dressing, on account of the soft, mushy mass made by the combination of blood and iron salt. It was a difficult task to clean out the cavity after using it. It was soon discarded, and other hæmostatics were tried in turn, in conjunction with compression. Nothing stopped the bleeding, however, although the different astringents were fairly tried during two days and nights. The child began to show the effects of the drain and of the nearly constant manipulations. From the commencement of the bleeding it had been given every two hours a mixture containing one drop each of tincture of iron and fluid extract of ergot properly diluted with syrup and water. On July 4th the bleeding was more profuse than ever, and it was evident that the child must soon die unless the bleeding was checked at once. I then inserted strong, straight needles deeply through the tissues above and below the umbilicus, and applied a strong silk thread around the needles in the form of a figure of eight, so that the stumps of the umbilical vessels were tightly compressed. This procedure stopped the flow, and the problem seemed to be solved. But within forty-eight hours the bleeding began at the base of the ligated mass. It was impracticable to ligate more tissue, and, in default of anything better, bismuth subnitrate was used on the open wound, because of its unirritating and mildly antiseptic qualities. The ulcerated base of the ligated mass was thickly covered with the powder, which was held in place by compresses and bandages. This proved to be a cleanly dressing and retarded the flow of blood very much. When the dressing became soaked it was removed and a new one applied. Sometimes the change had to be made within two hours. This condition of affairs was discouraging in the extreme. It seemed at times like a useless waste of effort in attempting to control a hæmorrhage in a child whose blood would not coagulate. But the anxiety of the parents for their child and a sincere desire to use all possible means for its relief prompted a continuance of the efforts. Another plan was then tried. Instead of applying a compress and bandages over the mass of bismuth, it was freely painted with collodion. This method answered the purpose better than anything yet used. The collodion formed a firm coating, which adhered tightly to the skin and prevented the escape of blood so long as the attachment remained firm. But after a few hours the film of collodion would begin to contract and pull loose, then the thin, watery blood would escape, and I would be forced to repair the leak by extending the film of collodion farther and farther, until the entire abdomen was covered with a firm cast. The contraction of this skin of collodion evidently became painful to the child, as it grew more restless and uneasy, and its legs were drawn up against the abdomen. To overcome this tendency to contraction, strips of a single thickness of antiseptic gauze were laid around the mass of powder at the navel and on the abdomen, and then flexible collodion was applied over all. This proved to be the better plan, but still the dressing required constant watching and repairing. On the twelfth day (fifth day after operation) the ligated mass had become loosened by ulceration and was removed. It left a hole in the muscular tissue of the abdominal walls as large as a silver half-dollar, from which the blood continued to flow. The bismuth, gauze, and collodion dressing was applied with monotonous frequency during the next seven days. We were soon gratified by observing that the wound was slowly contracting, the bleeding less free, and that the child's general condition was improving. When the babe was five weeks old the wound had cicatrized beautifully. After the bleeding had stopped a bismuth ointment was used, and now the only peculiarity about the babe's belly is the entire absence of the umbilical depression.

For three weeks after the hæmorrhage began no attempt was made to dress this babe, but it was handled on a pillow and watched during every hour of that time by the nurse or its parents. The mother nursed it regularly, no matter how weak or fretful it might be. The bowels were moved by injections of warm water when they did not act spontaneously. Although the child's temperature was high at times, no medicine was given except the iron and ergot and a simple mixture for colic.

I believe that if the bismuth, gauze, and flexible collodion had been used when the bleeding commenced, it would have obviated the necessity of ligating the tissues of the navel, and have saved valuable time and much anxiety. I strongly recommend the thorough application of such a dressing in similar cases of hæmorrhage, together with the internal medication.

The child is to-day, at the age of four months, as bright, healthy, and pretty a babe as one would wish to see.

The Grass Oil of India.—"Dr. R. F. Hutchinson, retired Surgeon-General of the Bengal Army, draws the attention of the medical profession to the valuable properties of the grass oil of India. It is, he says, the essential oil of the tall spiked grass of the Central Provinces of India, the *Andropogon schœnanthus* of Linnæus, and yielded the very precious ointment of spikenard of Scripture, known and valued in India as 'Rusá-ki-tél,' or Rusa oil. Its properties are alterative, emollient, and rubefacient. It is invaluable in gout and rheumatism, and, I may add, of remarkable efficacy in phlegmasia dolens. It is either rubbed in pure or mixed with salad oil. Being an essential oil, it is expensive; but a little goes a very long way, and its fragrance is largely in its favor. The oil is acted on by light, and passes from lemon-yellow to dark brown, but without losing its efficacy or fragrance."—*British and Colonial Druggist.*

BEWARE OF THE FREE USE OF COCAINE IN HAY FEVER.

By JOSEPH WILLIAM STICKLER, M. D.,
ORANGE, N. J.

I SAY beware for the following reasons:

1. It may cause a very great, even dangerous, depression of the vital powers. Last summer a patient introduced quite a liberal quantity into his nostrils, and in a few moments he was in a condition of collapse. His physician was sent for, and, after working over him for a long time, had the pleasure of seeing him restored to a speaking condition. Subsequently a good deal of professional care was required to bring him up to anything like a normal state of health.

2. If used freely it seriously impairs the appetite.

3. If used late in the day or during the evening it is very apt to induce insomnia. Persons who have hay fever do not long for any other physical disaster, at least not till they get rid of the sneezing.

4. The free use of cocaine induces in many persons a free diaphoresis. I have known the drug to act so energetically as a "sweater" as to exhaust the patient's strength.

5. The excessive use of cocaine often causes troublesome congestion of the nasal mucous membrane.

6. This powerful drug prevents sneezing and allays irritation only when the membrane affected is under its anæsthetic influence, hence in bad cases it must be used almost constantly.

7. Cocaine causes in some persons a very pleasant mental stimulation, which, while it lasts, is very delightful, but is invariably followed by mental depression and often by great irritability of temper.

8. It often causes troublesome constipation.

9. It does not *cure* hay fever.

Treatment of Stye.—"At the commencement, as soon as the irritation is felt, apply compresses dipped in a 3- or 4-per-cent. aqueous solution of boric acid. After several hours, carefully wash the borders of the affected lid with the same solution by means of a pledget of absorbent cotton dipped in the fluid. During the night apply compresses wet with boric acid, or a cataplasm of potato starch made up with the acid solution. The next morning a white spot will show itself in the center of the little tumor. This should be incised with a sharp, thin lancet, and the compresses again used. A solution of corrosive sublimate, 1 part in 5,000 of water, may be used instead of the boric solution."—*British and Colonial Druggist.*

Benzoate of Mercury in Syphilis.—"M. Cochery, in his inaugural thesis, recommends the use of this preparation of mercury as very efficacious and as being without any inconvenience. It was employed for the first time in Russia by Stoukowenkoff in 1888, and in France by Balzer and Thirloix. It is used as an injection made with chloride of sodium, cocaine, and distilled water, and must be freshly prepared, as a crystalline deposit is soon formed. No gastric or intestinal pains are produced, the salt is rapidly absorbed and eliminated, and the only drawback to its use seems to be that it corrodes the needles easily, and that these when in this condition give rise to sharp pain."—*British and Colonial Druggist.*

The Medical Society of the County of New York, at a meeting held on Monday evening, October 26th, elected Dr. George Henry Fox president for the ensuing year.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
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Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, OCTOBER 31, 1891.

SECRET "CURES" AND THE RIGHT TO KEEP THEM SECRET.

The public and the press have shown great interest in, and expressed various opinions of, the ethical questions which have been made prominent by the behavior of the last claimant to the gratitude of humanity for curing drunkards—a claim which, if established, must entitle the discoverer to rank with Jenner and Lister as one of the few whose privilege it has been after a few years of labor to save millions of human beings from suffering and death, even though he sins as much against morality and common sense as Dr. Keely. Surely, if mankind can be freed from the evils caused by drink—if even one half of these evils can be averted—we ought to forgive much wrong-doing by the man who discovers the means by which the end may be attained. While we must ever regret that the name of such a man is stained by his selfish and sordid action, the great good which his discovery—when made public—must do is far more important than his faults.

The public always seem to regard the position of the medical profession in relation to questions of right and wrong as if the ordinary rules of common sense had no connection with the matter. Indeed, "medical ethics" and "medical etiquette" are apparently, in the mind of the laity, terms which convey an idea of something mysterious, incomprehensible, and rather silly. It would be well if the truth were more widely known, that ethics is always ethics, and etiquette is always simply the practical application of the ordinary rules of courtesy to our daily life. "Medical" ethics or etiquette is not different from ethics or etiquette as generally understood. The adjective merely specifies the part, not the kind.

The ethical questions involved in regard to keeping any remedy secret are perfectly simple. One reason, and only one, justifies such a course. This reason is the one given by Koch for refusing to make public the process of manufacture of tuberculin—namely, that it was impossible at the time to give directions sufficiently precise to make it safe for others to attempt it. There is no moral reason why, if this is the case, the discoverer should not make money, if he can, by experimenting on those who are willing and able to pay, provided the latter understand that they are the subjects of experiment. It is, perhaps, not wise to do so, for it gives rise to unpleasant suspicions, but it is perfectly right.

So much for the right in regard to the discoverer. The duty of the profession in such a case is not so easy to define. In the first place, the reputation of the man who alleges that the remedy in question is useful must be considered, and, for a long period, this settles the question. If a scientist of the well-known character of Koch—one whose previous work has proved his truthfulness—announces the discovery of such a remedy, the profession is perfectly justified in employing it. If, however, there is no such guarantee of the genuineness of the drug, the plain duty of medical men is to wait for another sort of proof—namely, the evidence that popular experience may give. If, after years have clapsed, it is found that a certain secret remedy is not only harmless, but positively useful, it is our duty to use it. Most of our knowledge is empirical, and our first aim as honest men is to give to those who come to us that which they seek—relief from some sort of suffering. It matters not what the drug may be; if it is known to be safe and shown to be useful, we are bound to employ it. Time guarantees its value and the honesty of its manufacturer, and we are justified in trusting its label as we trust that of any reputable commercial house.

In the case of Dr. Keely, we are obliged to say that the methods of that gentleman are on a par with those of the quack. He professes to have discovered a "cure" for the drinking propensity. The evidence adduced to support the claim is of a nature to command more respect than attaches to the usual "unsolicited certificates" of the patent-medicine man, because a number of those who testify are well known. Moreover, a few of these men are known to have been drunkards for a long time, and are seen to have changed, as it seems, both in appearance and in habits. Sufficient time has not elapsed to enable one to judge of the permanence of the cure, but in a number of cases a considerable time seems to have passed without relapse. The number of failures is, of course, not known, but those who believe themselves cured seem to think that cure is the rule, not the exception. We know the case with which evidence of the value of any new "treatment" is to be obtained; but the evidence of this alleged cure is the testimony of more "sorts and conditions of men" than have ever heretofore testified in such a case.

The position of Dr. Keely is simply contemptible, unless his "cure" is fraudulent and he knows it. If he really believes in it he is guilty of conduct so unprincipled—so utterly wanting in appreciation of the duty he owes to mankind—that it is hard to forgive. If he is a swindler, he is not contemptible, he is positively brilliant in his line. Whatever he is, it is a serious responsibility for any man to assume when he refuses to divulge the methods by which he professes to produce such important results. We are not aware that any particular difficulty in the preparation of "bichloride of gold" (whatever that may mean) or of the unknown but apparently necessary "other substance" is advanced in justification of the secrecy. Dr. Keely's partisans allege that at some unspecified period he distributed an unspecified number of "barrels" of his remedy among a number of physicians (names and precise number not given). This, if it is true, is no excuse for his present course. Though he had sent a "barrel" to every doctor in the country, unless the nature of its contents was known or its harmlessness guaranteed by the reputation of the sender, no honest physician could use it. This is equally the case at the present time.

In the mean time the admirers of Dr. Keely should refrain from denouncing the "prejudice" of medical men. No opportunity has been afforded to submit his pretensions to judgment. The responsibility for this rests with the claimant. If his professions are just, he deliberately excludes from benefit probably a hundred thousand persons for every one now able to obtain treatment. Of course, the discoverer of a cure for drunkenness is worthy of any amount of pecuniary reward, but, if the statement that there are seven hundred people now under treatment by the doctor at $25 a week apiece is correct, the income of $17,500 a week must certainly soon place the recipient in circumstances of comparative ease.

THE VOMITING OF PREGNANCY.

There are few physicians who have not been consulted at one time or another for the symptom of vomiting during gestation. Fortunately in most cases the symptom is not attended with any danger and disappears after a variety of drugs have been used in succession, none of which perhaps had anything to do with its disappearance. Hence the legion of drugs recommended for the relief of this trouble. The theories held regarding its causation are as varied as the remedies employed for its relief. There can be but little doubt that the pathological factor varies in different cases; and no one theory can be held to cover every case. But any theory that offers a cure for the successful treatment of the disorder is worthy of consideration. Any one who has but once seen a case of this kind will retain a vivid recollection of a painful and anxious experience. He will recall how he has spent days and nights watching a life slowly ebb away, deferring action in the hope (often false) that the next day might bring a cessation of the complaint and shrinking from the destruction of a life even for the purpose of saving another life. Just this feature of hope and this difficulty of deciding whether the gravity of the case warrants the induction of premature labor make these cases so full of dread to the conscientious obstetrician.

Hence the interest that attaches to a recent discussion in the *Centralblatt für Gynäkologie*, by Ahlfeld and Kaltenbach, as to priority regarding the theory that hyperemesis gravidarum is often of an hysterical nature. The point, however, which is of special interest to the profession is the circumstance that both these writers have had unusual success with a treatment based on this assumption. The patients were treated as if suffering from severe hysteria; they were isolated from their families, kept under strict surveillance, and given nervine sedatives, the most useful of which were found to be the bromides. The present writer for years past has been using the bromides, often combined with chloral, *per rectum* in the vomiting attending albuminuria in pregnancy, and has had excellent results. Although the authors cited make no mention as to the mode of administration of the bromides in their cases, it is reasonable to assume that they must have been given in enemata, for they would hardly have been retained otherwise. The treatment is worthy of further trial, and we hope to see the results published.

MINOR PARAGRAPHS.

THE NERVOUS SYSTEM IN ADDISON'S DISEASE.

Recent writers have done much toward the elucidation of the cause of the complex of symptoms found in this disease. According to Fliener, who writes in the *Medicinischer Anzeiger*, the opinion in Germany is that the abdominal sympathetic, generally a branch which supplies the suprarenal capsule, is at fault. The work of Tizzoni has shown pigmentary infiltration and considerable alteration to exist both in the central nervous system and in the sympathetic system in Addison's disease. This author reported autopsies held in two cases of accidental death occurring in persons with distinct indications of this disease. In one, death had followed an operation for fungous degeneration of the testicle. In this case there was tuberculosis of one suprarenal capsule, with chronic inflammation and thickening of the other. The semilunar ganglion was extremely enlarged. In the second case the left suprarenal capsule was in a state of metastatic angeiosarcoma, as were also bundles of the splanchnic nerves in this situation. Careful examination showed the whole sympathetic system and the accompanying blood-vessels to be in an inflamed and degenerated condition. This degeneration was especially to be found in the medullary fibers and in the ganglion cells. These pathological changes were also found to have extended to the intervertebral spinal ganglia, the peripheral nerves, the muscular-fiber cells, and the mixed nerves of the skin. The posterior roots and the intercostal nerves were also involved in the degenerative process. The anterior roots and the spinal cord were found in a perfectly normal condition. This observer regards the process in the sympathetic as one of metastasis, as the histories of his two cases revealed previous ganglionic tumors in the neck, of which nothing remained but the scars.

CHLORMETHYL IN THE TREATMENT OF NEURALGIAS.

The *Deutsche medicinische Wochenschrift* contains an article by Steiner on the superior benefits to be derived from the use of this remedy in the treatment of neuralgic affections. The chlormethyl, CH_3Cl, or monochlormethane, when subjected to the pressure of four atmospheres, becomes fluid; it is then forced into copper siphons, from which it is allowed, by an apparatus fixed in the top of the bottle, to stream against the painful part to be treated. The effect on the tissues is similar to that produced by the application of ice. At no time has the author observed any ill effect from the remedy other than a redness of the skin. The too frequent application might result in an excoriation of the surface. Chlormethyl lowers not alone the temperature of the part, but also the excitability of the sensory nerves, and in this manner diminishes and relieves pain. Steiner prefers this remedy in the neuralgias to quinine, antipyrine, phenacetin, and other drugs of this class. The application is made daily, the pain is relieved at once, and after the first week of treatment it does not return. Massage and electricity may be used in conjunction with the chlormethyl, as it is probable that they may assist in its action. The author has used the remedy with success in severe cases of ischiadic neuralgia and the traumatic neuroses, and strongly advocates its more general trial.

A JOURNAL OF MECHANICAL THERAPEUTICS.

We have received the first and second numbers of *Contributions to Mechanico-therapeutics and Orthopædics*, edited by Dr. L. Wischnewetzky, who is in charge of the Mechanico-therapeutic and Orthopædic Institute in Fifth Avenue, where wonderful pieces of apparatus for exercising the various parts of the body are in use. The publication does not purport to appear at definite times, and the numbers vary in thickness and in price. The two numbers thus far issued, which contain very interesting reading, embrace essays by Dr. Gustaf Zander and a clever preface by the editor.

THE UNIVERSITY OF DUBLIN.

After several adjourned meetings of the Academic Council, they have elected Sir George H. Porter, Bart., M. D., to be regius professor of surgery in the place of Mr. William Colles, resigned. The new professor is one of the most eminent of Dublin surgeons, his reputation being more than European, and his genial disposition and social qualifications have made him acceptable in all circles. Sir George Porter is considered to be the richest member of the profession in Dublin.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 27, 1891:

DISEASES.	Week ending Oct. 20.		Week ending Oct. 27.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	55	11	44	8
Scarlet fever	82	4	72	13
Cerebro-spinal meningitis	1	1	2	4
Measles	34	11	33	4
Diphtheria	90	25	79	28
Small-pox	0	0	0	0
Erysipelas	0	0	0	0
Varicella	0	0	0	0
Pertussis	0	3	1	3

Changes of Address.—Dr. Elizabeth N. Bradley, to No. 45 East Fifty-ninth Street; Dr. A. M. Fernandez de Ybarra, to No. 140 West Tenth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 18 to October 24, 1891:*

Vickery, Richard S., Major and Surgeon, is relieved from duty at the Army and Navy General Hospital, Hot Springs, Ark., and ordered to duty at Fort Monroe, Va.

Munn, Curtis E., Major and Surgeon, upon being relieved from duty at Fort Monroe, Va., is ordered to duty at Mount Vernon Barracks, Ala.

Cleary, Peter J. A., Major and Surgeon, upon being relieved from duty at Mount Vernon Barracks, Ala., is ordered to duty at Fort McPherson, Ga.

Happersett, John C. G., Major and Surgeon, upon being relieved from duty at Fort McPherson, Ga., is ordered for duty at Fort Custer, Montana.

Middleton, Passmore, Major and Surgeon, will, by direction of the President, report in person to Colonel Melville A. Cochran, Sixth Infantry, president of the Army Retiring Board, at Newport Barracks, Ky., for examination by the board.

Waters, William E., Major and Surgeon, upon being relieved from duty at Fort Custer, Montana, is ordered for duty at Columbus Barracks, Ohio.

Jarvis, Nathan S., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Bayard, New Mexico, and ordered for duty at San Carlos, Arizona.

Johnson, Richard W., Captain and Assistant Surgeon, upon being relieved from duty at San Carlos, Arizona, is ordered for duty at Fort Bayard, New Mexico.

Gardner, Edwin F., Captain and Assistant Surgeon, will proceed from Fort Porter, N. Y., to New York city, for temporary duty as attending surgeon and examiner of recruits in that city.

Biart, Victor, Captain and Assistant Surgeon, having been found incapacitated for active service on account of disability incident to the service, is, by direction of the President, retired from active service to date, October 21, 1891.

Gandy, Charles M., Captain and Assistant Surgeon, is granted leave of absence for fifteen days, to take effect on final adjournment of Army Medical Board now in session in New York city.

Appel, Daniel M., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect about the 6th proximo.

Brooke, Benjamin, First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Riley, Kansas, and ordered for duty at Fort Leavenworth, Kansas.

Keefer, Frank R., First Lieutenant and Assistant Surgeon, upon being relieved from duty at Fort Leavenworth, Kansas, is ordered for duty at Fort Riley, Kansas.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the two weeks ending October 24, 1891:*

Purviance, George, Surgeon. Upon completion of duties as chairman of Examining Board, to inspect Marine Hospitals at St. Louis, Mo., Cairo, Ill., and Cincinnati, Ohio. October 16, 1891.

Godfrey, John, Surgeon. To represent the service at the meeting of the American Public Health Association. October 14, 1891. To inspect Marine Hospital at Louisville, Ky. October 14, 1891.

Carter, H. R., Passed Assistant Surgeon. Granted leave of absence for thirty days. October 17, 1891.

Pettus, W. J., Passed Assistant Surgeon. Orders to Norfolk, Va., revoked; to proceed to Cape Charles Quarantine for temporary duty. October 14, 1891.

Kinyoun, J. J., Passed Assistant Surgeon. To represent the service at the meeting of the American Public Health Association. October 17, 1891.

Perry, T. B., Passed Assistant Surgeon. To proceed to Norfolk, Va., for temporary duty. October 14, 1891.

Guitéras, G. M., Assistant Surgeon. To proceed to Gulf Quarantine for duty. October 20, 1891.

Rosenau, M. J., Assistant Surgeon. Granted leave of absence for thirty days. October 24, 1891.

Society Meetings for the Coming Week:

Monday, *November 2d:* New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *November 3d:* New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburgh Medical Association; Hampden, Mass., District Medical Society (Springfield); Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Society (Lewiston); Baltimore Academy of Medicine.

Wednesday, *November 4th:* Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor).

Thursday, *November 5th:* New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Medical Society of the County of Orleans (annual—Albion); Boston Medico-Psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

Friday, *November 6th:* Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *November 7th:* Clinical Society of the New York Postgraduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Letters to the Editor.

THE LOCALIZATION OF PULMONARY TUBERCULOSIS IN THE UPPER LOBES.

NEW YORK, *October 7, 1891.*

To the Editor of the New York Medical Journal:

SIR: In the elaborate paper of Dr. J. West Roosevelt on The Frequency of the Localization of Phthisis Pulmonalis in the Upper Lobes, which appeared in the Journal for October 3d, my paper on the same subject, read at the Tenth International Medical Congress, was kindly mentioned. As Dr. Roosevelt holds the opinion that the act of respiration has nothing or very little to do with the invasion of the tubercle bacilli in the lungs, he, of course, can not approve of my explanation of the cause of the predisposition of the apices of the lungs to chronic tuberculosis. It is not my purpose to defend here the general ground of my theory or to attempt a criticism upon the theory of Dr. Roosevelt. I must rather compliment the learned author for putting forward a new and original idea upon which his theory is based, and one which is accessible to an experimental test—an impartial judge in theoretical disputes.

I wish only to explain here a certain statement of mine which seemed to Dr. Roosevelt to be incorrect. I stated that at the end of a deep inspiration the pressure was in all parts of the lungs equal to the pressure of the atmospheric air, with the exception of those alveoli whose bronchiole was plugged, and thus prevented the air from entering into these alveoli; here a negative pressure prevails—*i. e.*, the pressure is below the pressure of the atmospheric air. To this Dr. Roosevelt remarks: "Every alveolus, whether plugged or not by any substances in the bronchiole through which it communicates with the air, is under all circumstances subjected to a pressure after a deep inspiration which precisely equals that of the external air. If its afferent bronchiole is plugged, it may not expand as much as the surrounding alveoli, but the pressure exerted by the air within it is always the same." I must confess that I do not fully comprehend the last sentence. Even if the alveoli expand very little, as long as no air from without finds direct access to them to fill out the increased space, the air within must become rarefied and must consequently be under a lower pressure than the atmospheric air. "The pressure exerted by the air within it" is *not* "always the same," but is obviously in proportion to the facility for the supply of air from without. Concerning the pressure within the lungs during an inspiration, deep or normal, we have to distinguish between the period while the inspiration is still in motion, and the phase after the inspiration comes to a standstill and before the expiration commences. As long as the thoracic cavity continues to increase, the pressure within all parts, or nearly all parts, of the lungs is always of a negative character, which is the cause of the inrush of air through the trachea into the lungs. After the inspiration comes to a standstill, however, the entering air manages in a very short time to fill out the additional space, and thus the pressure is again equal to the pressure of the atmospheric air. If the air is entirely prevented from entering into the lungs, as when, for instance, the trachea is obstructed, the pressure within the lungs remains permanently negative as long as the inspiration lasts. But, even if the air enters freely through the trachea, the negative character of the pressure can be altered only in those parts of the thoracic cavity where the atmospheric air finds direct access. Thus the negative pressure within the pleural cavity, which increases with each inspiration (in a rabbit) from thirty to sixty millimetres of water, remains the same as long as the inspiration lasts, although the pressure within the lungs is again equal to the pressure of the atmospheric air. By stimulating the pneumogastric nerve we manage to prolong the inspiration in equal strength from ten to fifteen seconds. I possess a number of graphic curves, taken from the mediastinum posterius while the vagi were stimulated; they show clearly that the negative pressure remained the same during the entire standstill of the inspiration. We should remember at the same time that, although we find an increased negative pressure, there is no trace of an expansion of the pleural cavity. What we know of the pleural cavity finds full application to those parts of the lungs where the air finds no access to the alveoli. The negative pressure which prevailed in all the alveoli during the inspiratory movements remains unchanged in the isolated alveoli, even after the inspiration has come to a standstill, because there has been no new supply of air to cover the difference in the pressure. The atmospheric pressure prevailing in the adjoining parts has no influence upon the pressure either in the pleural cavity or in the isolated alveoli, on account of the elasticity of the alveolar membrane, which always causes the pressure outside of it to be less than within it. There would prevail a negative pressure in the isolated alveoli even if they did not expand at all, just as we see in the pleural cavity. But, as Dr. Roosevelt expresses himself that they "may not expand *as much* as the surrounding alveoli," he consequently believes that these isolated alveoli *do expand somewhat*, and we may justly expect the more that the pressure within those alveoli whose bronchioles are entirely obstructed will remain of a negative character, even after the inspiration comes to a standstill.

S. J. MELTZER, M. D.

REPLY TO DR. MELTZER'S LETTER.

32 EAST THIRTY-FIRST STREET, *October 22, 1891.*

To the Editor of the New York Medical Journal:

SIR: In reply to the courteous letter of Dr. S. J. Meltzer (a copy of which he kindly sent me before publishing it) I am compelled to admit that my criticism of his statement in regard to the relative pressures of air in the different parts of the lungs, under the conditions mentioned, is erroneous. It is needless to explain the rest of my obscurely worded note, since its main point is shown to be false.

I must add that I think Dr. Meltzer's own statement does not express the whole truth. It is necessary to modify it somewhat in certain respects. The following is, I think, an accurate statement of the facts: At the end of a deep inspiration the pressure in all parts of the lungs becomes equal to that of the atmospheric air, except in alveoli the bronchioles of which are occluded, *provided the occlusion took place at a time when the maximum expansion of the alveoli had not been attained.* If the bronchiole becomes plugged when the alveoli are only partly expanded—*i. e.*, at any time when the chest is not fully expanded—the air in them is, at the time specified, subjected to negative pressure, owing to the elasticity of the walls of the surrounding unobstructed alveoli. If the occlusion occurred when expansion was complete, the pressure within and without must be equal at the end of inspiration, since the alveoli throughout the entire lung are equally expanded.

The point under discussion is not very important, but I desire to do justice to Dr. Meltzer, and also, if possible, to avoid adding my own error to the large number of misstatements which have been made about physical laws in relation to the lungs. J. West Roosevelt, M. D.

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Proceedings of Societies.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Seventeenth Annual Meeting, held in St. Louis on Wednesday, Thursday, and Friday, October 14, 15, and 16, 1891.

The President, Dr. C. H. Hughes, of St. Louis, in the Chair.

The Toxic Effect of Tobacco Vapor, with Report of Cases, was the title of a paper by Dr. W. Carroll Chapman, of Louisville. He said that usually the presence of tobacco poison in the systems of tobacco-workers was manifested during the first day or two by violent vomiting, retching, purging, and often a state of collapse, after which the system might become inured to it. Occasionally we found one whose constitution, even by contact and time, although there was a certain amount of toleration, refused to receive it kindly, and emaciation began, attended, sooner or later, by such symptoms as the following case illustrated:

A boy, aged ten years, was found suffering extreme pain in the abdominal region, with the intensity centering at the umbilicus. The temperature under the tongue was 100° F.; the pulse 108, small, wiry, and irregular; and the respiration 20 to 22, but irregular, several short, shallow respirations being followed by one deep and gasping. The tongue was glairy, red, and pointed. The patient had been constipated for the last several days; the abdomen was flat, or rather depressed; the urine was scanty and slightly colored; and the skin was dry, as were the hands and feet, the latter being a little cold. Near the patient the odor of tobacco was so pronounced that the author made inquiries regarding it, and learned that he worked in a tobacco stemmery, and, further, that he had had slight attacks of similar pains at several different times, but of a milder form.

As to the nicotianin, indications pointed strongly to its being a cause. According to Landerer, it occurred only in dried tobacco leaves, and had the odor of that plant—a point strongly in its favor, as that odor was so distinct in every case the author had seen. It would seem, further, that the basic substances and fatty acids were causative agents, because authors had proved by physiological experiments that these caused contraction of the pupil, dyspnœa, abdominal pains, convulsions, and death.

The author directed attention to two factors noticeable in all the cases, namely, the emaciation, and the time each patient had followed the occupation—from six weeks to three months. The three patients whose cases he reported had not suffered from the vomiting and retching usually attendant upon young tobacco-workers for the first day or two. In the other, or milder cases, he had neglected to inquire regarding that point.

The toxic effects of tobacco vapor and its treatment were subjects worthy of more consideration than the profession had accorded to them in the past, and he hoped that the next few years, aided by diligent and careful investigation, would place the matter in a more intelligent light.

The Treatment of Typhoid Fever.—This was the title of a paper by Dr. Robert C. Kenner, of Louisville, in which he directed particular attention to the cold-bath treatment.

Pelvic Inflammation in Women; a Pathological Study.—Dr. William W. Potter, of Buffalo, followed with a paper thus entitled. The author affirmed that pelvic inflammations and their residues constituted about one third of the diseases that gynæcologists treated; hence the importance of frequent discussions of all moot questions relating to the subject. He briefly reviewed the anatomical relations of the pelvic organs, calling attention to their enormous blood and nerve supply, which became both their weakness and their strength. He contrasted the pathology of Bennett (1843) with that of Emmet (1873), and the latter with the teachings of Price, Tait, Hegar, and McMurtry of the present age. He referred to the pathological studies of Bernutz and Goupil of thirty years ago, and affirmed that the observations of the present had served to confirm the correctness of those pioneers.

He next asserted that the pathology of to-day had been established by operative surgery, which had shown that pelvic inflammation began in the tubes or ovaries, and extended to adjacent structures through absorption or by contiguity; that it hardly ever began in the cellular tissue, but might be carried there through the tubes and ovaries by infection, either specific, puerperal, or traumatic. He affirmed that the inflammation was in most cases a peritonitis, intrapelvic or local in character, and not a cellulitis; that parametritis and perimetritis were misleading and confusing terms, and should be dropped; and that the so-called pelvic abscess was a sequel of salpingitis, oophoritis, or peritonitis, not a primitive accumulation in the areolar tissue itself.

The tentative management in these cases—by rest, counter-irritation, hot sitz baths, vaginal douches, and attention to the digestive organs and general health—resulted in only temporary improvement, or in cure in a very small percentage. Those reported cured were generally, if the history could be known, subject to repeated relapses; and a frequently recurring pelvic peritonitis usually indicated leaky tubes. Electricity, too, had disappointed even its most sanguine advocate, and need not be considered. In conclusion, he asserted that if these views were accepted, the logical deduction was to watch the early manifestations of the disease carefully; that competent surgical skill might be invoked before the damage to important structures became too great to justify the expectation of successful operation.

The Nervous Equation of Pelvic Inflammation was the title of a paper by Dr. George F. Hulbert, of St. Louis.

The Pathology and Surgical Treatment of the So-called Strumous Inguinal Lymphadenitis.—Dr. L. T. Riesmeyer, of St. Louis, read a paper on this subject.

Complications during and following Abdominal Operations.—Dr. Rufus B. Hall, of Cincinnati, read a paper on this subject.

Gastrostomy for Impermeable Stricture of the Cardiac End of the Œsophagus; Recovery; Subsequent Dilatation of the Stricture.—Dr. Arch Dixon, of Henderson, Ky., read a paper thus entitled. On July 14th of the present year Dr. Thomas W. Taylor had consulted him in regard to a patient who was unable to swallow anything save liquids. Examination by means of an œsophageal bougie (smallest size) revealed the fact that complete stenosis of the œsophagus existed at the cardiac end. Repeated trials failed to pass the stricture, and the patient was informed that only an operation the nature of which was explained to him could prevent his death from starvation. An operation was declined. Again, on July 29th, the patient consulted him, and, after persistent efforts, he failed to pass the stricture with the smallest bougie. The patient was requested by the author to go before the Henderson County Medical Society, which held a meeting that afternoon, and be examined. To this the patient consented, and again an attempt was made to pass the stricture by a number of physicians present, without success. A statement of the case was made by Dr. Dixon, and the unanimous opinion was expressed to the patient that only an operation could save his life. The patient had by this time grown much weaker and was reduced in flesh. The operation was consented to, and on August 4th, at the Home Mission Sanitarium, assisted by Dr. John Young, Dr. Brown, Dr. W. M. Hanna, Dr. W. S. Stone, Dr. A. J. Lieber, and Dr. T. W. Taylor, Dr. Dixon did a gastrostomy after Hecker's method, as follows: The patient was prepared in the usual way, the field of operation being made as nearly aseptic as possible. Chloroform was administered. The incision was made four inches long, beginning an inch below the ensiform cartilage and an inch and a half to the left of the median line; the peritonæum was reached, caught up between forceps, and divided the full length of the incision. The index and the middle fingers were inserted, the transverse colon was pushed downward, and the stomach was reached without difficulty; a fold was caught between the fingers and partially drawn through the wound, where it was held by Dr. Brown, while a careful search was made for the cardiac end, and to detect, if possible, any tumor or enlargement that might be the cause of the stricture. None could be discovered. A silver pin was now passed through the fold of the stomach, which was drawn through the wound, a little above the level of the skin, care being taken that the pin pierced the mucous membrane, as suggested by Weir, thus forming a support for the stomach in the wound and serving as a guide, when the opening should be made into it, to show that the cavity was reached. The pin was about three inches long and rested on the skin on either side of the wound. The peritoneal coat of the stomach was now stitched to the peritonæum by a continuous suture which on either side of the wound included the skin. The peritonæum above and below was brought together by interrupted sutures, which embraced muscle, fascia, and skin as well.

The wound was now covered with iodoform collodion, over which iodoform gauze was placed, confined by adhesive strips. The opening into the stomach was purposely deferred until adhesions should have formed. The patient recovered from the effects of the anæsthetic well. There was some pain of a darting character, which was relieved by a hypodermic injection of a quarter of a grain of morphine and one one-hundred-and-fiftieth of a grain of atropine. The operation was finished at 11 A. M. At 6 P. M. the temperature was 99°, the pulse 78. On August 5th the temperature was 98·5°, the pulse 72. The temperature and pulse remained normal until the morning of the 7th, when the dressing was removed.

A little cocaine was injected into the fold of the stomach which protruded through the wound, and the gastrostomy was completed by cutting down upon the pin with a tenotome. As in Weir's case, the presence of the pin was a valuable guide in showing beyond question that the cavity of the stomach had been entered. There was no hæmorrhage of moment. The adhesions being firm, the pin was withdrawn and the mucous membrane was drawn up and stitched to the skin. A rubber tube was now passed into the stomach through the opening, fitting it snugly. Iodoform collodion was liberally used around the tube and over the abdominal wound. Iodoform gauze, folded several times, through which a hole was cut for the tube, came next, covered by a piece of rubber sheeting. Borated cotton, held in place by adhesive strips, completed the dressing. The tube was kept *in situ* by a thread passed through it above and below, and the thread held in place by adhesive strips. Peptonized milk, half a pint with a teaspoonful of Mosquera's beef-meal, was now injected through the tube into the stomach by means of a large syringe. An ordinary spring clothes-pin was used as a clamp for the tube. Six hours later another half-pint of milk with the beef-meal was thrown into the stomach-the patient experiencing a satisfaction which had not been experienced previously from the use of nutritive enemata. The temperature at 8 P. M. reached 101°. At 10 A. M. on the 8th it had again fallen to normal. The feeding was continued at intervals of six hours, the food being varied in character; chopped meat, eggs, bread, etc., were used, the patient having an aversion to brandy, and refusing to take a stimulant of any character. Improvement was steady, and in ten days the patient was out of bed. In two weeks he was walking about the house, and in three weeks was down in the city, a distance of half a mile from the sanitarium.

On the 29th, twenty-four days after the primary operation and twenty-one days after the stomach was opened, Dr. Dixon determined to try dilatation, and was agreeably surprised to find that the smallest-sized olive-pointed bougie entered the stomach, passing the stricture without difficulty. A size larger was now used, and it also passed without force.

On the following day a large stomach tube was passed down the œsophagus, and with little difficulty entered the stomach. Dilatation was continued at intervals of a few days. From liquid food the patient soon essayed some solid food, and on September 10th took his first square meal, which consisted of oysters, broiled beef-steak, coffee, eggs, and bread. He left the sanitarium, and the author was thinking seriously of closing the abdominal opening, or allowing it to close. On September 23d the patient, who made daily visits to him, complained again of difficulty of swallowing solid food; especially was there difficulty in swallowing bread. The bougies passed the stricture easily on their entrance, but on their withdrawal there was a decided hitch, and even the smallest bougie was caught slightly when withdrawn. Dr. Dixon at first attributed this to spasmodic action, but the difficulty grew greater and greater, until finally he could no longer reach the stomach by way of the œsophagus with a bougie. Liquids could still be swallowed and found their way into the stomach. He now determined to try retrograde dilatation, and on September 30th, assisted by Dr. John Young Brown, he succeeded in finding the cardiac end of the œsophagus and passing it with a very small *bougie à boule*. The opening was of about the size of a very small shirt button-hole, and felt much like the meatus urinarius in a girl; it was surrounded by a hard tissue feeling much like a fibroid. A uterine sound was next properly bent and, with the finger as a guide, passed into the œsophagus; this was followed by a uterine dilator; slight pressure on the handles opened the blades almost half an inch, but the patient experienced so much pain that it was deemed best to desist. On the following day chloroform was administered and retrograde dilatation was accomplished, first by means of Wylie's uterine dilator, the use of which enabled the author to enter the orifice with a large-sized bougie (rectal).

Up to this time he had not been able to determine whether the stricture was due to malignant trouble or not, but, on passing the finger into the non-dilated œsophagus, a friable, irregular growth was detected, which easily broke down and bled rather freely. A piece of this growth was twisted off with a forceps and sent to Dr. Formad, of Philadelphia, for examination. Since the dilatation the patient had been able to swallow solid food without much difficulty, had notably improved in flesh and strength, and was able to attend to some business.

The author wished to acknowledge his indebtedness to Dr. Robert F. Weir, of New York, for many valuable suggestions, both in the performance of the operation and in the management of the case afterward, gleaned from his report of a similar case published in the *Medical Record* for July 25, 1891. Dr. Dixon also exhibited the patient to the meeting.

Dr. L. C. BOISLINIÈRE, of St. Louis, showed a new obstetric forceps of his own design.

(*To be continued.*)

NEW YORK ACADEMY OF MEDICINE.

Meeting of October 15, 1891.

The President, Dr. Alfred L. Loomis, in the Chair.

The Medical and Surgical Treatment of Epilepsy.—Dr. B. Sachs read a paper on this subject, confining his remarks chiefly to the surgical aspect of the question. The query, "What can we expect from the surgical treatment of epilepsy?" he would answer by presenting the views he was forced to hold regarding the nature of the disorder which we proposed to cure by this means, and by giving the results of his own experience in twelve cases of cerebral operations, nine of which had been done for epilepsy. He wished to remind his hearers that epilepsy was a symptom and not a disease. It was often merely one of a number of symptoms pointing to organic disease of the brain, to tumor, hæmorrhage, abscess, or widespread meningitis and sclerosis. In other cases it was the direct or remote effect of traumatic injuries to the skull or brain. In addition to these there were cases of genuine epilepsy. The author saw now relatively fewer cases of this class than he had seen in former years. On closer examination, he had not infrequently found that the epilepsy had taken its start from a long-forgotten injury or accident, or that it had in its earlier days been associated with paralysis, the paralysis having left but the slightest traces, while the epilepsy remained. It was not to be supposed that a true epilepsy, not meaning a single convulsive seizure, was a functional disease. In ignorance it might be called so, but with the improved methods of examining cortical tissue we should before long be able to demonstrate its anatomical substratum. Two French authors had been leading the way in this direction. They had found, in the case of congenital cerebral palsies, that some slight lesion had been established during the intra-uterine period; that this lesion might be lost sight of, but that the secondary degeneration following upon it was the cause of the supposed hereditary epilepsy. This secondary sclerosis was the proof upon which the entire question turned. He reiterated that in cases of idiopathic epilepsy the actual causal lesion had not yet been determined; these cases had by common consent not been considered proper cases for operation. Jacksonian epilepsies due to focal disease, whether of traumatic origin or not, were the cases to which operative interference had been directed. The focus of disease was present in these cases, as well as the secondary sclerosis. If years passed by before death ensued, the focal disease might be beyond recognition, but the secondary sclerosis had been demonstrated as being present. From these pathological conditions the inference could be drawn that there was a focal lesion and that there was a subsequent secondary sclerosis to deal with; it was therefore plain that the proper thing to do was to prevent the development of the secondary sclerosis if possible, or, if it had been developed, to neutralize its effects. The practical conclusions the author gave after the foregoing remarks were these: 1. In a given case of traumatic or organic lesion an operation should be done as early as possible to prevent the development of secondary sclerosis. 2. If an operation had not been done at the onset, the epileptic seizure was a warning that secondary sclerosis had been established; by operating at this time further trouble might be avoided. 3. Excision of the diseased area was the only rational operation; if all other centers were not in an irritable condition, the operation might be thoroughly successful. If epilepsy could not be cured by this means, the patient's condition might be very materially improved by diminishing the number of attacks.

The author purposely refrained from entering upon the subject of operative interference in cases of tumor or abscess of the brain, as the advisability of operating was governed by motives other than the cure of the epilepsy. Traumatic cases called for immediate surgical interference. Whenever the skull had sustained a severe or even a moderate injury, a surgeon or the attending physician should do an exploratory operation to make sure that there was no depression of bone. As trepanation was not a very dangerous operation, it would be better to do this than to have the slightest doubt, for, if it was neglected until epileptic symptoms appeared, the case might be beyond the possibility of surgical relief. After epilepsy following traumatic injury of the skull or of the brain had been developed, there was still hope that the epilepsy might in a few instances be inhibited by surgical methods. For ages past trepanation had been the classical operation in these cases. Wherever depressed bone pressed upon any part of the cortex, or an old scar acted as a source of irritation, the removal of such was clearly indicated. In many cases improvement, if not a cure, of the condition followed. We must seek, however, an explanation for the improvement which followed trepanation in many cases of traumatic epilepsy of long standing in which there was no old scar or any marked depression of bone. It was known that traumatic cysts were very frequent, and that this opening simply relieved the increased pressure due to the presence of the cyst. The author then gave a condensed history of several operative cases, in some of which excision of cortical substance had been performed. One of the serious features of excision operations, and indeed of all cerebral operations, was the possibility that they might lead to the formation of cicatricial tissue in or around the cortex which might do more harm than the initial lesion. Yet, from what the author had seen of the free pulsation of brains years after an operation, he believed that this danger from new cicatricial tissue was quite slight. Granting the entire success of the operation in question, one had at best in many cases substituted a paralysis for an epilepsy.

Simple trepanation seemed to be more successful in the epilepsies associated with infantile cerebral palsies than in the traumatic forms, probably because of the greater frequency of cysts in these diseases than in the traumatic epilepsies. The early recognition of these troubles was of great importance; and the question naturally arose, whether we could diagnosticate the lesion with sufficient accuracy to encourage the surgeon to operate at an early day, before secondary degeneration was established. The author believed this would be possible in many cases, but the disease set in frequently at a very tender age, at which cerebral operations were but poorly tolerated; moreover, the epilepsy, although a probable sequel, was still a remote contingent, the paralysis represented the reality, and parents would be more apt to tell the physician to care for the present only—more particularly if looking to the future meant a possible increase of the paralysis. As soon as epileptic symptoms appeared the paralysis had the value of a focal symptom; the centers should be exposed, and, if not removed, they should at least be treated in accordance with the special indications of the case. In children excision of a center was a less serious affair than in the adult, for in the former other parts of the cortex were capable to a greater degree of assuming the functions of the destroyed part. The author was confident that if these cases of infantile cerebral palsies were more generally recognized, and if we succeeded in checking the tendency to epilepsy in them, the total number of epileptics would be sensibly diminished. If the surgical treatment of epilepsy was of any value at all, it must, in view of the foregoing, not be restricted to the traumatic forms.

Dr. C. L. Dana, prefacing a brief consideration of the therapeutic possibilities in the treatment of epileptics, thought that a large proportion of these patients represented the expression of chronic degeneration. Idiopathic epilepsy was, in his opinion, symptomatic of a definite tendency to degeneration in a family or an individual. Such patients would be found to have certain physical, physiological, and psychical characteristics by which might be traced the intensity of the degenerative processes. It was essential to make careful examinations of these patients for the purpose of ascertaining the extent to which these stigmata of degeneration were present. Just as these were in excess, so would the medical and surgical treatment be of little avail. On the one hand was the strongly marked degenerated epileptic, who showed the evidences of inferior organization; on the other there were those forms of disease which seemed to be of accidental or extrinsic origin. There were also the reflex phenomena, which could hardly be called epilepsy at all.

Contrary to a common impression, epileptics were not large and robust persons, but either they were below the average weight, the cranium was asymmetrical (in 71 per cent.), there was a shortening of the parietal arc (sometimes of the frontal arc), the teeth were bad and badly placed in the jaws, the face was unequally innervated, differences existed in the color of the pupils and in the size and position of the pupillary orifice, astigmatism was present (in three fourths of the cases), the ear was deformed or badly placed, the crown of the scalp was out of position, the vital capacity was low, there were (commonly) genital enormities, there were deformities of the fingers (long fingers were common, webbed and supernumerary fingers rare), or the left side was more developed than the right. In the treatment of idiopathic epilepsy the first and primary rule was to take cases early and treat them vigorously from the start. Children who had a few convulsions during the first three to five years of life should be treated as if they might develop epilepsy between the ages of ten and sixteen. The recurrence of a fit between the ages of five and ten should excite apprehension and call for the most diligent treatment. Along with the evolution of epilepsy there was probably a progressive diffuse neuroglia sclerosis of the brain. Whether this was primary or secondary, it was at least proper to use those measures which apparently affected this neuroglia proliferation. Nitrate of silver, arsenic, and perhaps iodide of potassium were drugs which we believed effected this. Measures should also be used to increase vaso-motor tone, strengthen and steady the circulation; for this purpose were the baths, douches, and so forth. Nothing was more unfortunate than the enforced idleness of this class; some occupation ought to be prescribed. The next most important indication was diet; this should be non-irritating and easily digested.

As to the symptomatic drugs, the most valuable adjuvant to the bromides was hydrate of chloral, but he had found a new drug in chloralamide which did all the good ascribed to the former drug and did not affect the heart or the circulation. All the bromides acted alike in this disease, except perhaps the bromide of gold and of camphor, in which the amount of bromine was small. The galvanic current through the brain and neck, given daily for a long time, would, in his opinion, yield all the results alleged for it by Dr. Rockwell, who had so strongly advocated its use.

Dr. J. A. **Wyeth** said that the older he grew in surgical experience the more he recognized the value of co-operation between the medical and surgical branches of the profession. This was especially necessary when work on the brain was involved. He had found himself at a loss to deal with these cases until he had consulted with his neurological friends to verify his diagnosis and assist him in fixing the *locus in quo* of the lesion. The speaker then gave the steps in the various operative methods for reaching the assumed focal lesion, speaking strongly in favor of what is known as the trap-door operation, by which a large area of the brain surface is exposed to exploration. The technical objection to this operation was the impossibility of securing bony union after closure of the parts. An instrument in course of completion would, he believed, now render this possible. He thought there were many cases of epilepsy amenable to surgical methods, and he did not believe that the simple exposure of the brain could now be classed as a serious operation.

Dr. W. R. **Birdsall** did not agree with the last speaker about the danger of the operation, for it must be remembered that a good many patients did die as a direct result of the surgery. In order not to bring operative work into discredit, cases should be carefully selected, and the earlier in the disease the work was done the better the chance of success.

Dr. M. A. **Starr** thought that the cases for operation could be limited to those of traumatic epilepsy and to those where the brain lesion could be located. In ninety-nine cases out of a hundred the condition was not due to trauma and we knew nothing as to its origin, or in what location to seek for the lesion. Some interesting work had lately been done which went to show that careful observation of the condition of the urine from day to day would demonstrate accurately the possible approach of attacks of migraine or epilepsy, and that by the proper use of acids and alkalies in the regulation of digestive and chemical processes we might have a clew to means of preventing the frequent occurrence of epileptic attacks.

Dr. E. D. **Fisher** thought that operations could seldom be undertaken sufficiently early to prevent the sclerosis or descending degeneration at the site of the lesion. If this could be done at the age of from two to four years we might give the brain a chance for the renewal of cell activity.

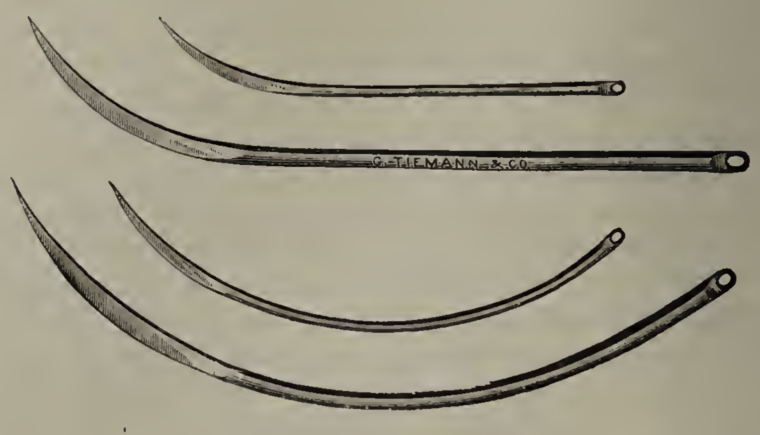
Dr. G. M. **Hammond** referred to several cases in which cure had been alleged as the result of severe mental shock. Much had also been maintained for hypnotism by the French writers. Personally he was skeptical as to its power to cure any organic disease.

New Inventions, etc.

A NEW HAND NEEDLE.

By W. H. Elliott, M. D.,
SAVANNAH,
CHIEF SURGEON, CENTRAL RAILROAD OF GEORGIA.

Hagedorn effected a great improvement in the method of closing wounds by making his needle cut at right angles to the line of the wound. There is, however, a great drawback to the use of his needle in that it requires a holder. This is too large for the pocket case, there is not always room to use it, and many, for the sake of convenience and speed, prefer sewing directly by hand.



I have therefore devised a needle convenient for hand use which has the good points of the Hagedorn needles. The eye is made round, for the use of catgut. The shaft is rounded on the sides and flattened slightly on the other faces, which gives the operator a firmer hold. The curved cutting portion has its edges placed antero-posteriorly instead of laterally, as in the ordinary needle. At first the needle was made double-edged; but it was found to cut too long a slot. To obviate this, the convex edge only was made to cut. The cutting part is longer than that of Hagedorn, and therefore sharper, and enters more easily.

I have had these needles made for me by Messrs. Tiemann & Co., full and half curved, in sets of six each, the largest and smallest of which are shown in the woodcut.

I have used these needles constantly for the past two years and find them very satisfactory.

Miscellany.

The State Board of Medical Examiners of New Jersey.—The board consists of Dr. A. K. Baldwin, of Newark (appointed to succeed Dr. H. C. Hendry, of Newark, who resigned on April 8, 1891); Dr. Henry G. Wagoner, of Somerville; Dr. A. H. Worthington, of Trenton (treasurer); Dr. William L. Newell, of Millville (president); Dr. Eugene Tiesler, of Orange; Dr. William Perry Watson, of Jersey City (secretary); Dr. D. R. Atwell, of Hoboken; Dr. George W. Brown, of Long Branch; and Dr. Armin Uebelacker, of Morristown.

The board's first annual report to the Governor, dated October 8, 1891, and signed by the secretary, Dr. William Perry Watson, is as follows:

I have the honor to present herewith the first annual report of the State Board of Medical Examiners appointed July 8, 1890, under an "Act to regulate the Practice of Medicine and Surgery," approved May 12, 1890.

It seems proper to say that under the medical law, approved March 12, 1881, and the supplement thereto, approved March 22, 1883, which was in force previous to July 4, 1890, when the present medical law went into effect, *any* one presenting *any* diploma from *any* college could file a copy thereof with any county clerk and thereby become a legal practitioner within the law, as well as any "cancer," "pile," "worm," "herb," or "root" doctor who filed a certificate of twenty years' practice within the State. While this law was an improvement over none at all, yet its comparative worthlessness is evidenced by the fact that most of the county clerks are unable to discriminate between fraudulent and legal diplomas, and can not or do not take the trouble to tell a medical from a literary or a dental diploma, as is shown by the record, where non-medical diplomas are on file, or, as one county clerk wrote to me, "This is in Russian, and I can't make it out." This might be a certificate to peddle peanuts in Russia, and yet this man is just as much entitled to practice medicine in this State as your own family physician.

Again, an instance has been discovered where two men, friends, one with and one without a diploma, went to a county clerk's office, and one of them, while he was filing his diploma, jokingly said to his friend: "Why don't you register also?" Whereupon the person in charge of the office (I can hardly believe it was the clerk himself) said: "Why, yes, just make out a copy of that diploma and it will be all right." The party so addressed did so, and would be a legal practitioner in this State to-day but for our present medical law, which went into effect before the above-described affair took place. And this leads to the statement that over one hundred physicians have been allowed to register in the old way since July 4, 1890, but such registration is null and void and does not entitle the party so registered to legally practice medicine in this State. It was the intent of the old law that the county clerks should properly scrutinize the diplomas presented to them; but how could nearly two hundred diplomas, which were registered in one office in one day, be properly examined even by a medical man, much less by a layman, in eight hours?

Thus, then, it is no wonder that over ten per cent. of the 2,500 legalized physicians in this State are registered on bogus or fraudulent diplomas.

A word only as to our medical colleges. Many of them are giving the requisite time for the didactic, clinical, and hospital training of their graduates, while on the other hand some strive to obtain the name of "easy-to-get-through ones," thereby increasing—temporarily, at least—their graduation fees. Where shall we draw the line? Examine some and not others? No. Those who have sufficient medical education to practice their profession intelligently and successfully need not, and do not, fear the examinations of any State board. Divorce the licensing from the teaching powers and we shall have more faithful and better educated teachers, and medical men and women more carefully prepared to protect the health, lives, and homes—because illiteracy and incompetency are a menace to all—of our citizens.

The State protects its subjects from uneducated lawyers in that it requires them to be examined by its Supreme Court before they are allowed to practice their profession, wherein usually property only is at stake, and that, too, before an unbiased judge and jury and an opposing counsel. Why, then, should it not protect its subjects from illiterate and incompetent physicians, wherein the poor patient has no judge nor jury and no opposing counsel to protect him from the patronizing audacity of self-arrogance.

At a recent convention of the boiler makers of the United States, held in Chicago, it was unanimously ordered that no one should be admitted to membership in, or be recognized by, their order until he had served an apprenticeship of four years. Is the boiler of more intricate mechanism than man? Does it require more skill to keep it "in order" than man? Is it of more importance to the State than man? Not one will acknowledge it. While some are in favor of letting every one practice medicine who will, yet these very same persons seek physicians of education, reputation, and skill whenever they or theirs are ill. While it is true that the educated practitioners may suffer from the mendacity of patronized ignorance, yet the people are the chief sufferers.

Our board met and organized in Trenton on September 2, 1890, by the election of officers for the ensuing year, and by the appointment of committees on rules and regulations governing the board and its examinations, on forms of certificates, stationery, etc. These committees reported to the full board in Trenton on September 18, 1890: first, regulations governing examinations (appendix A); second, forms for application blanks (appendix B); third, forms of examination papers (appendix C); fourth, form of certificate, seal, etc. (appendix D), and the subdivisions of sections (appendix E).

On October 8, 1890, we again met in Trenton, when preparations were made for the first examination, which commenced on the following morning at nine o'clock and continued until six o'clock of the evening of the 10th. During these examinations eleven candidates presented themselves, ten of whom were granted certificates by the board.

On November 11, 1890, the board met in Jersey City, when the following important resolution was unanimously adopted, *i. e.*, "It was ordered, on motion, that steps shall be at once taken toward repealing the charter of the 'Medical and Surgical College of New Jersey,' located in this city, at the coming meeting of our State Legislature." The bill repealing this charter passed both Houses almost unanimously (only four dissenting votes), and was approved by you on March 9, 1891. The medical profession of the State are hereby entitled to and will please accept the thanks of this board for their hearty co-operation in this movement. At this meeting also, Mr. Leon Abbett, Jr., was elected counsel to the board.

On January 7, 1891, the board met in Trenton, and preparations were made for the examinations, which commenced on the following morning at nine o'clock and continued two days, during which time six candidates presented themselves for a license, and, at a meeting of the board held on the evening of the 9th to adjudicate the results of said examinations, it was found that all the candidates had received more than the required percentage, and accordingly a certificate was issued to each of them.

On April 8, 1891, the board met in Trenton, when the resignation of Dr. H. C. Hendry and the commission of Dr. A. E. Baldwin in his place were received. Preparations were made for the examinations, which commenced on the following morning at eight o'clock, continuing two days, when thirty-two candidates were examined, and at a meeting of the board held in Trenton on April 15, 1891, to adjudicate the results of these examinations, it was found that only twenty-five had obtained the required percentage, and to them only a license was issued.

On July 8, 1891, the board met in Trenton and made preparations for the examinations, which commenced on the following morning at nine o'clock, continuing two days, when fifty-one candidates presented themselves for examination, and at a meeting held in Jersey City on July 17, 1891, for the adjudication of the results of the examinations, it was found that eight had failed to receive the required 75 per cent., and consequently no license was issued to them.

Thus, the board has held eleven meetings, examined one hundred and one candidates, issued eighty-two licenses to practice medicine in the State and three licenses in the preliminary branches, and rejected sixteen candidates. In appendix F you will find the percentages obtained by each candidate in his respective branches. The name of the candidate, for obvious reasons, has been omitted, and the name of the medical school at which he was educated substituted.

A word only as to the examinations. That there shall be no partiality as between schools or individuals, each candidate is known only by a number which he receives upon entering the examination room, and the corresponding name is not known to the board until his total average percentage has been made up, recorded, and passed upon by the whole board. In this way we strive so far as possible to place each candidate upon his respective merits.

In all our examinations our aim has been to make them practical, yet of sufficient severity to test the applicant's knowledge of medicine and surgery and their collateral branches; no catch questions are allowed, and all the questions presented by each examiner in his own branch are approved of by the whole board in the meeting held the day previous to the examination.

Previous to the year 1890 about three hundred physicians, including "nondescripts," etc., registered in this State each year for several years, while during the past year, as you see, only eighty-two have been licensed. Thus the law acts largely by exclusion rather than by rejection, since we only rejected sixteen. Men who do not feel competent to pass our examinations find a convenient opening for them in the States where there is no medical law—*e. g.*, Massachusetts and Connecticut. Thus, in Minnesota, where a similar law has been in operation since 1883, the ratio of physicians to the population has decreased over one half during seven years, being over twelve per cent. in 1883, and only six per cent. in 1890.

While our law is not perfect, yet I think it is one of the best in existence; while our board is a "mixed" one as to its make-up—*i. e.*, consisting of five old-school physicians, three homœopathic physicians, and one eclectic physician—yet each member thereof will bear me witness when I say that we are a harmonious board; that we are there as nine men to see to it that the requirements of the law under which we are acting are complied with; that the word "school" or "pathy" is never mentioned in our deliberations; that we do not try to break down or build up any school; but that we are determined that every physician who hereafter locates in New Jersey shall be an educated physician.

Exhibit F, appended to Dr. Watson's report, consisted of the following table:

Examination number.	Medical education obtained at	Materia medica and therapeutics.	Obstetrics and gynæcology.	Practice of medicine.	Surgery and surgical anatomy.	Anatomy.	Physiology.	Chemistry.	Histology, pathology, and diseases of the eye and ear.	Hygiene and medical jurisprudence.	Total average percentage.
1.	University of Padua, Italy *	95	75·1	80·1	51	......	......	......	......	......	75·3
2.	Hahnemann Med. Col. of Philadelphia, Pa.*	99	96	94·1	80	......	......	......	......	......	92·2
3.	Med. Dep't Univ. of N. Y. City Wooster Univ., Cleveland, Ohio	98	92	88·1	80	89	86·5	96·8	65·5	62·5	84·2
4.	Med. Dep't Univ. of Pennsylvania	100	91	98·9	95	97	94	100	95	99	97·5
5.	Med. Dep't Univ. of Pennsylvania	100	81·5	88	75	77	83	100	97·5	85	86·7
6.	Col. Phys. and Surgs. of Baltimore*	84	92	89·8	75	......	......	......	......	......	85·2
7.	N. Y. Med. Col. and Hosp. for Women	88·5	82·5	83	80	90	84·5	75	90	76·5	83·3
8.	Jefferson Med. Col.*	85	99·9	94·5	60	......	......	......	......	......	84·8
9.	Med. Dep't Univ. of N. Y. City	90·5	81	81·8	64	72	80·5	84	54·5	75·5	75·9
10.	Med. Dep't Univ. of Pennsylvania	96	99	87·5	75	79·5	97	95	93	93	90·5
11.	Jefferson Med. Col	81·5	72	69	51	67	84	51	52·5	71·5	66·6
12.	Med. Dep't of Columbia Col	89	99	90	100	99·6	84	72·5	80·5	80·5	88·8
13.	Bellevue Hosp. Med. Col	83	94·5	85	80	79	95·5	78·5	93	94	86·9
14.	Homœopathic Col. of N. Y. City	80	98·8	90	80	80·8	88·8	80	79·5	90	85·3
15.	Med. Dep't Univ. of N. Y. City	85	97·6	85	80	94	86·5	84·5	86	83	86·8
16.	Med. Dep't Univ. of Pennsylvania *	85	92·6	75	75	......	......	......	......	......	81·9
17.	Jefferson Med. Col	89	97·7	75	85	81	86	78	84·5	90	85·1
18.	Bellevue Hosp. Med. Col	75	90	77·5	83	75	77·5	75	78	81·5	79·1
19.	Bellevue Hosp. Med. Col	82	97	66·5	87	93	89	92	77	82·5	85·1
20.	Hahnemann Med. Col. of Chicago	96	87	84·3	89	75·5	90	98	81	84·5	87·2
21.	Bellevue Hosp. Med. Col	89·5	92	50	84	75	89·1	50	66	63	73·1
22.	Bellevue Hosp. Med. Col	90	97	75	86	82·5	100	94	91	82·5	88·6
23.	Bellevue Hosp. Med. Col	80	90	58·5	75	77	88	89	81	84·5	80·3
24.	Med. Dep't Univ. of N. Y. City	80	80	81·5	78	75	95	57	45	62	72·6
25.	Bellevue Hosp. Med. Col	81	92	72·5	86	100	85	70	89	85·5	84·5
26.	Bellevue Hosp. Med. Col	81	97	89	97	93·5	97·5	75	85	86	89
27.	Bellevue Hosp. Med. Col	96	94	59	73	78	95·5	78·5	64	85·5	80·3
28.	Hahnemann Med. Col. of Chicago	94·5	92	50	77	91	82	75	69	63·5	77·1
29.	Med. Dep't Univ. of N. Y. City	79	95	63	75	86	77·5	98	88	88	83·2
30.	Med. Dep't Univ. of N. Y. City	76	92	77·5	80	78	75·1	75	71	81	78·4
31.	Med. Dep't Univ. of Pennsylvania*	79	90	82	79	......	......	......	......	......	82·5
32.	Hahnemann Med. Col. of Philadelphia	95·5	86	48·5	85	75	83·5	76	59	77	76·1
33.	Univ. of Würzburg * Univ. of Bonn	79	98	67	74	......	......	......	......	......	79·5
34.	Med. Dep't Univ. of N. Y. City	86	93	63	80	95	88	90	84	76	83·8
35.	Med. Dep't Univ. of N. Y. City	94	80	71	86	91	90	100	78	87	86
36.	Hahnemann Med. Col. of Chicago	97·5	90	48·5	94	76	81·5	82	63	76·5	78·7

* First class.

Examination number.	Medical education obtained at	Materia medica and therapeutics.	Obstetrics and gynæcology.	Practice of medicine.	Surgery and surgical anatomy.	Anatomy.	Physiology.	Chemistry.	Histology, pathology, and diseases of the eye and ear.	Hygiene and medical jurisprudence.	Total average percentage.
37.	Homœopathic Med. Col. of N. Y. City*	99	100	95·5	95	......	......	......	......	......	97·3
38.	Med. Dep't Univ. of N. Y. City	83	98	78	76	92·5	100	83·5	84	85·5	86·7
39.	Univ. of Zürich	62	90	65·5	76	58	78·5	87·5	60	62	71·5
40.	Med. Dep't of Columbia Col	87	96	52·5	81	89	100	89	64	93·5	83 5
41.	Med. Dep't Univ. of N. Y. City	80	70	16	65	70	65·5	60	66	87	64·5
42.	Med. Dep't Univ. of N. Y. City	90	94	57	71	88	96	92	73	87·5	83·1
43.	Woman's Med. Col. of Pennsylvania	72	100	86	83	91·5	95	90·5	95	95·5	89·8
44.	Momœopathic Med. Col. of N. Y. City	99·5	96	79	87	90·5	100	63·5	87	95	88·6
45.	Med. Dep't of Columbia Col.* Bellevue Hosp. Med. Col	88	98	77	83	......	......	......	......	......	86·5
46.	Med. Dep't Univ. of N. Y. City	88	90	52	70	79	79	97·5	65	90	78·8
47.	Med. Dep't Univ. of Pennsylvania*	76	60	50·5	71	......	......	......	......	......	64·3
48.	Jefferson Med. Col	76	75	24	50	75	69	50	47	66	59·1
49.	Woman's Med. Col. of Pennsylvania	56	94	70	65	70	82	48·5	75	68·5	69·8
50.	Homœopathic Med. Col. of N. Y. City	100	98	59·5	94	91·5	98	50	85	83·5	84
51.	Woman's Med. Col. of Pennsylvania	76	85·5	50	55	59·5	82·5	65	48	79	66·7
52.	Med. Dep't Univ. of N. Y. City	75	89·4	55	75	71	87·6	78	69·5	50·5	72·3
53.	Jefferson Med. Col	88	97·6	74	89	88·5	80	86	75	85·5	83·8
54.	Med. Dep't Univ. of N. Y. City	77	92·8	80	78	94	82	87	71·5	69	81·2
55.	Hahnemann Med. Col. of Chicago	90	94·6	80·5	75	89·5	92	92	76·5	59·5	83
56.	Med. Dep't of Columbia Col	95	100	79	89	97·8	98	80	80·5	84	89·2
57.	Med. Dep't of Columbia Col	92	88·5	76	87	95·6	89	76	76·5	89·5	83·3
58.	Med. Dep't of Columbia Col	95	100	93·5	87	89·5	97	81	87	95	91·6
59.	Med. Dep't Univ. of Pennsylvania	97	92·8	81	96	95·2	98·7	83	79	72	88·3
60.	Med. Dep't Univ. of Virginia Med. Dep't Univ. of N. Y. City	93	98·4	87·5	87	94	94	75	80	75·5	87·1
61.	Jefferson Med. Col	94	90·5	85	97	86	97	75	77	88·5	87·7
62.	Jefferson Med. Col	91	......	......	......	80·5	86	63	75·7	......	79·2
63.	Long Island Col. Hosp	93	92·4	56	75	67	75·5	65	78·5	73	75
64.	Bellevue Hosp. Med. Col	94	90·3	63	68	79	73·5	92	38	77·5	75
65.	Medico-Chirurgical Col. of Philadelphia	90	90·6	76	90	91	76·5	81	75	87·5	83·2
66.	Columbus Med. Col Bellevue Hosp. Med. Col	87	92·5	72·5	86	95	80	70	80·5	62	80·6
67.	Med. School of Maine*	84	94·5	45	62	......	......	......	......	......	71·3
68.	Med. School of Maine Col. Phys. and Surgs. of Chicago Col. Phys. and Surgs. of Boston	97	99·5	81	94·5	92·6	98	75	81	87·5	89·5
69.	Jefferson Med. Col	85	67·4	48·5	82	93·6	81	78	40·5	58·5	68·2
70.	Albany Med. Col.*	81	76	37·5	63	......	......	......	......	......	64·3
71.	Med. Dep't Univ. of Pennsylvania*	90	99	76	78	......	......	......	......	......	85·3
72.	Med. Dep't of Columbia Col.*	92	100	83·5	83	......	......	......	......	......	89·6
73.	Med. Dep't of Columbia Col Bellevue Hosp. Med. Col	91	92·4	75	75	88·6	96	70	65·5	76·5	81·1
74.	Med. Dep't Univ. of Pennsylvania Jefferson Med. Col	46	......	......	......	......	......	......	......	......	......
75.	Med. Dep't Univ. of Pennsylvania	90	96·3	60	92	83·1	53	68	43	91·5	75·2
76.	Med. Dep't Univ. of Pennsylvania	92	93	81	92	87·6	79·2	61	68	79	81·5
77.	Med. Dep't of Columbia Col	100	100	87·5	96	93·6	100	91	83·5	87	93·1
78.	Univ. of Zürich	79	73·4	88·5	88	58	79·5	76	67·5	66·5	75·1
79.	Woman's Med. Col. of Pennsylvania	84	98	84	83	86·6	96	75	76·5	87	86
80.	Med. Dep't of Columbia Col	89	100	88	97	97·4	98	67	95·5	86	90·9
81.	Med. Dep't of Columbia Col	100	99·5	97·5	95	100	98·5	95	97	90	96·9
82.	Med. Dep't Univ. of Pennsylvania	97	96	83	96	92	90·5	75	73·5	95·5	88·7
83.	Med. Dep't Univ. of N. Y. City	90	98·3	89	92	94·6	89·5	74	78	94·5	88·7
84.	Col. Phys. and Surg. of Baltimore	98	95·4	90	95	93·5	92	87	82·5	83	90·7
85.	Med. Dep't Univ. of Pennsylvania	91	100	76	89	83	89·5	88	77	82·5	86·2
86.	Med. Dep't of Columbia Col.* Jefferson Med. Col	79	98·8	73	76	......	......	......	......	......	81·7
87.	Med. Dep't of Columbia Col	88	94·6	82	85	94·5	83·5	75	60	77	82·1
88.	Med. Dep't Univ. of N. Y. City	79	85	47	77	95·5	88·7	72	52	84·5	75·6
89.	Jefferson Med. Col	85	92	43	67	48	78	74	49·5	71·5	67·5
90.	Col. Phys. and Surgs. of Baltimore	93	98·6	45	82	75·5	85·5	68	68	65·5	75·6
91.	Med. Dep't Univ. of Pennsylvania	90	87·3	65	81	76	75	77	75	69.5	77·3
92.	McGill Univ. of Montreal*	93	100	93	77	......	......	......	......	......	90·7
93.	Med. Dep't Univ. of Pennsylvania	85	86·4	43	81	68·5	62·5	83	61·5	54	69·4
94.	Jefferson Med. Col	93	......	......	......	69·5	65·7	75	......	......	75·8
95.	St. Louis Med. Col.* St. Louis Col. Phys. and Surgs	93	88	61·5	73	......	......	......	......	......	78·8
96.	Jefferson Med. Col	95	95·5	70	91	82	100	75	79·5	81	85·4
97.	Med. Dep't of Columbia Col Med. Dep't Univ. of N. Y. City	83	91·5	64	89	84	87·9	80	76	90	83
98.	Med. Dep't Univ. of Pennsylvania	98	93	80	97	90	96	76	76·5	94	88·9
99.	Med. Dep't Univ. of Pennsylvania	98	......	......	......	83·5	94	89	81·4	......	89·1
100.	Med. Dep't of Columbia Col.* Univ. of Leipsic	86	96·4	95	99·5	......	......	......	......	......	94·2
101.	Med. Dep't of Columbia Col	75	91·9	65	91	86·5	93	74	82	86·5	82·7

* First class.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for October 23d:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.....	Oct. 17.	1,695,856	747	87	..	..	..	..	..	12	5	27	10	3
Chicago, Ill..........	Oct. 17.	1,200,000	....	31	..	..	..	.	..	31	11	26	..	6
Brooklyn, N. Y......	Oct. 17.	806,343	392	54	..	..	..	..	..	6	4	12	..	....
Boston, Mass	Oct. 17.	448,477	214	16	..	..	..	..	..	8	..	5	..	....
Baltimore, Md.......	Oct. 17.	439,439	188	14	..	..	..	..	..	8	4	5	..	3
Cincinnati, Ohio.....	Oct. 16.	296,908	97	4	..	..	..	..	..	4	2	4	..	1
New Orleans, La.....	Sept. 19.	242,039	97	14	..	..	..	..	..	3	..	1	..	....
New Orleans, La.....	Sept. 26.	242,039	106	15	..	..	..	..	..	3	..	1	..	2
New Orleans, La.....	Oct. 3.	242,039	131	17	..	..	..	..	..	2	..	1	..	....
Pittsburgh, Pa.......	Oct. 10.	238,617	88	....	..	.	..	..	..	5	5	10	..	3
Louisville, Ky	Oct. 17.	161,129	72	5	..	..	..	..	..	4	..	8	..	....
Minneapolis, Minn...	Oct. 17.	164,738	45	....	..	..	..	..	..	1	..	1	..	....
Providence, R. I.....	Oct. 17.	132,146	49	....	..	..	..	..	..	..	1	..	..	....
Rochester, N. Y......	Oct. 17.	133,896	49	3	..	..	..	..	1	..	..	2	..	1
Indianapolis, Ind....	Oct. 3.	105,436	29	2	..	..	..	..	..	1	..	4	..	....
Richmond, Va.......	Oct. 17.	81,388	46	....	..	..	..	..	..	1	..	8	..	....
Toledo, Ohio.........	Oct. 16.	82,652	28	....	..	..	..	..	..	..	..	2	..	....
Nashville, Tenn	Oct. 17.	76,168	28	2	..	..	..	..	..	..	..	1	..	2
Fall River, Mass.....	Oct. 17.	74,398	40	4	..	..	..	..	..	3	..	1	..	1
Manchester, N. H....	Oct. 17.	44,126	....	....	..	..	..	..	..	..	..	..	..	....
Galveston, Texas....	Oct. 2.	29,084	12	2	..	..	..	..	..	..	..	..	..	....
Portland, Me.........	Oct. 17.	36,425	12	....	..	..	..	..	..	..	..	..	..	....
Binghamton, N. Y...	Oct. 17.	35,000	21	1	..	..	..	..	..	3	..	3	.	....
Auburn, N. Y........	Oct. 17.	25,858	13	3	..	..	..	..	..	..	..	..	..	....
Rock Island, Ill......	Oct. 18.	13,694	3	....	..	..	..	..	..	..	..	..	..	....
San Diego, Cal.......	Oct. 10.	16,159	7	....	..	..	..	..	..	..	..	..	..	....

Pulmonary Tuberculosis treated by Hypodermic Injections of Arsitol.—On September 15, 1891, M. Herard read before the Paris Academy of Medicine a report by Dr. Nadaud upon this subject. An abstract of it is given as follows in the *Semaine médicale* (No. 46):

After having observed the excellent effects of aristol upon scrofulo-tuberculous lesions, and found that aristol was perfectly innocuous in internal medication, M. Nadaud decided to make use of hypodermic injections formulated as follows:

Oil of sweet almonds (sterilized)............	100 c. cm.;
Aristol..................................	1 c. cm.

The solution should be filtered.

Nadaud's first injections were made upon a child aged seven years, who, after an attack of coxalgia, had several abscesses followed by fistulous tracts. One cubic centimetre of aristol was injected daily. After twenty-five days of treatment there was no trace of suppuration to be seen. In consequence of this result, Dr. Nadaud decided to test the value of hypodermic injections of aristol in the treatment of pulmonary tuberculosis. Twenty-three patients suffering from tuberculous lesions of the lungs were successively treated by injections of aristol without any other medication whatever. In seven cases the amelioration was so great as to induce the belief that complete cures had been effected. The treatment covered from twenty-five to thirty days. The amelioration has continued up to the time of writing—*i. e.*, from three to four months. In five of the twenty-three cases there was a prompt amelioration, but in a month after the cessation of the treatment some symptoms were observed which seemed to call for a second series of injections. Generally the relapse was of slight importance, and the patients in this category soon resumed their habitual occupations. In no case was it necessary to make a third series of injections. The rest of the cases are still under aristol treatment. In concluding his paper Dr. Nadaud said: The effects of aristol are promptly observed, usually on the sixth or seventh day of medication, and are first manifested by a diminution of the cough and a suppression of night-sweats. After twenty or twenty-five days of treatment we generally find that the patient has increased in weight. Aristol gives its best results in the first and second stages of pulmonary tuberculosis. The injections do not cause inflammation, irritation, abscess, eschar, or induration.

The Nerves of the Cornea.—" Dr. A. C. Dogel has examined eyes which had been taken from the body from five to seventeen hours after death. The result of these examinations, as published in a Russian ophthalmic review, was that he found the cornea provided with from sixty to eighty small nerve branches, some with and some without medulla, of which from twenty to thirty go to the posterior corneal surface, and from forty to fifty to the anterior. In these nerves a central filament and a peripheral axis cylinder substance may be distinguished. The central filament resolves itself into single nerve fibrillæ. Within the corneal parenchyma the nerves and their branches form a primary plexus. This primary plexus gives out secondary branches, called 'rami perforantes,' which form the subepithelial plexus, and this again gives rise to still finer ramifications forming an intra-epithelial plexus. The same nerve branch generally shares with its branches of the second order in the formation of all these plexuses. The nerve terminations in the epithelium are bulb-shaped, and form ganglions. An especial thickness and zigzag course distinguish those filaments which go to the stroma of the cornea. These also form a plexus. Each layer of the cornea has a separate plexus except the membrane of Descemet and the next layer, which have no nerve plexus. The author believes, in opposition to Kuehne and Waldeyer, that the nerves of the cornea have no sort of connection with its cells and corpuscles, but are merely situated between them."—*Lancet.*

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, NOVEMBER 7, 1891.

Original Communications.

VARIOUS FORMS OF DISEASE OF THE ETHMOID CELLS.*

By F. H. BOSWORTH, M. D.,
NEW YORK.

For a number of years past, and since the diseased conditions of the ethmoid cells have been recognized, it has been the custom to group all forms of morbid action in this region under the general designation of "ethmoidal disease." With our increased knowledge and familiarity with morbid manifestations in the nasal cavity at the present day, it seems to me incumbent upon us that we should abandon this vague term of ethmoid disease, and, certainly in the majority of our cases, make a more definite diagnosis, especially since, from a clinical point of view, diseased conditions in these cells manifest themselves by appearances and symptoms entirely distinct in different instances. It is only within the past five or six years that our attention has been particularly called to disease of this region, and during that period I have had under my own personal observation and fully recorded in my note-book twenty-seven cases under the designation of "ethmoidal disease." I have made a somewhat careful analysis of these cases, and I find that they group themselves into five varieties.

First, myxomatous degeneration without purulent discharge. Four of my cases were of this variety, of which a single one is fairly illustrative:

Case I.—C. E. A., aged sixty-one, presented with a history of nasal stenosis and repeated colds in the head, dating back for ten years, and for six years had been a sufferer from perennial asthma. Examination showed the middle turbinated bodies in both nares swollen to such an extent as to nearly approximate the septum, while at the same time the mucous membrane was in a state of myxomatous degeneration, presenting the bluish-white, gray aspect of ordinary nasal polypi and yet showing no pedunculated tumors. This patient was seen at varying intervals, and the sessile masses of myxomatous tissue removed by means of the snare were constantly reproducing themselves, but never assuming the form of pedunculated tumors. The intranasal condition was finally overcome by snaring out the anterior portion of the middle turbinated bodies, thus opening into the ethmoidal cells of either side, and, as opportunity offered, these cells were to an extent excavated, and the local difficulty overcome in this way by means of the snare and curette.

In former years I have been accustomed to regard this condition of myxomatous degeneration as simply the precursor of ordinary nasal polypi. My experience with this case and that of three others very similar has led me to the belief that the diseased condition of the mucous membrane covering the middle turbinated body in these cases is to be regarded as a symptom of ethmoid disease, rather than as constituting an independent morbid lesion. The intracellular condition in these cases is probably of an inflammatory character, rather than neoplastic.

The second group of cases is that characterized by extracellular myxomatous degeneration, with purulent discharge from the ethmoid cells. As an illustrative case, the following is given:

Case II.—G. I. S., aged thirty-seven, presented with a history of intranasal trouble extending back twenty years, and which for three years had given rise to an ill-smelling, purulent discharge from the right side of the nose. An examination revealed the right middle turbinated bone notably swollen and covered with mucous membrane in a condition of myxomatous degeneration, which anteriorly assumed the form of small, sessile polyps. A considerable amount of bright-yellow pus was found both on the middle and lower turbinated body, the source of which, upon careful inspection, was found to be in the superior meatus, thus clearly indicating its source in the posterior ethmoid cells. The myxomatous tissue was removed by the snare, as also a considerable portion of the middle turbinated bone, thus uncovering the ethmoid cells, which were subsequently excavated by means of the electric drill and burr. The result has been a very marked improvement in the symptoms. The patient, however, is still under care.

Seven cases of this kind have been under observation, three of which were practically identical with the case already given, while in four the disease was complicated with disease of the antrum. This latter affection was eliminated by opening the antrum and subjecting it to thorough irrigation; and, although in these cases the ethmoid affection was suspected, the diagnosis was only rendered certain by the fact that the pus discharge persisted after the antral disorder was brought under control. Of these seven cases, two were cured, two were seen but once, and the other three are notably improved and still under treatment.

This form of ethmoid disease is practically a later stage of the first form, as an investigation of the histories shows that whereas in the first variety the disease had persisted from but five to ten years, in the variety under consideration the disease had existed from fifteen to twenty-five years, the purulent discharge setting in after the milder form had persisted from eight to fifteen years.

A third variety we designate as "purulent ethmoiditis with nasal polypi." Thirteen of these cases have been under observation, in seven of which the ethmoid disorder was complicated with disease of the antrum, this latter affection being eliminated, as in the former variety, by opening this cavity through the alveolar process and subjecting it to proper irrigation. The following is a fairly illustrative case:

Case III.—Mrs. S., aged sixty, for twenty years had suffered from nasal stenosis, with more or less profuse discharge from each nostril, which, on examination, was found to be due apparently to the existence of nasal polypi. At intervals of from ten days to a fortnight perhaps from twenty-five to thirty growths were removed from each nasal passage until the passages above were clear. Notwithstanding the treatment, a more or less profuse purulent discharge persisted from the right side, which finally I determined was due to the existence of antrum disease. This cavity was perforated through the alveolar process, and found to contain a large amount of offensive pus. Under the ordinary treatment this source of the purulent discharge was controlled, notably mitigating the symptoms. The pus discharge continued, and I subsequently determined that its source was in the ethmoid cells, the middle turbinated body being notably swollen. These cells were now opened by means of the Jarvis snare and curetted. This treatment was repeated on several occasions, and the patient is practically cured, although there is a moderate amount of muco-purulent discharge still persisting from the neighborhood of the superior meatus, evidently from the broken-down ethmoid cells.

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* Read before the American Laryngological Association at its thirteenth annual congress.

Of the seven cases of this form of ethmoid disease which were complicated with antrum disorder, both the antrum and ethmoid cavities were opened in six, while in the remaining six cases in which there was no antrum disease, the ethmoid cells were opened. In those cases which were complicated with antrum trouble the disease had existed for periods varying from ten to twenty-five years; and while the antrum disease was practically cured, the ethmoid trouble was so far relieved as to prove of but little annoyance, although in no instance, probably, would it be safe to say that a radical cure was accomplished. Of the cases uncomplicated with antrum disease, three were cured, while in the remaining three there was very marked improvement.

A fourth variety of ethmoidal disease we may designate as "intracellular polyp without pus-discharge," of which one case has come under my observation:

CASE IV.—G. H., a female, aged twenty-one, presented with a history of nasal stenosis, dating back three years, giving rise to no prominent symptoms other than a disposition to repeated colds in the head, with moderate mucous discharge. An examination showed the right middle turbinated bone swollen to perhaps twice its normal contour, and in contact with the septum. The mucous membrane covering it presented something the aspect of myxomatous tissue. A snare was placed about it and the shell-like cap, as it were, removed, upon which there came into view a large, soft, gelatinous polyp, completely filling the cavity. This was evulsed by means of the snare, the result being an entire cure.

A fifth class of cases may be designated as "intracellular polyp with purulent discharge," two of which have come under my observation. The first case is as follows:

CASE V.—Mrs. C. D., aged thirty-two, presented with a history of catarrhal trouble, dating back ten years, giving rise to a more or less profuse dropping of muco-pus into the throat, with frequent colds in the head and nasal stenosis. An examination of the nasal cavity showed the middle and lower turbinated bodies of both sides coated with thin, greenish-yellow, dry, purulent incrustations, upon the removal of which by a pledget of cotton the membrane beneath was found to be in a fairly healthy condition, although both middle turbinated bones were slightly swollen and presented somewhat the appearance of myxomatous degeneration, while from above each of these bodies there seemed to issue a small amount of bright-yellow pus. After a certain amount of local treatment directed to the nasal cavities, which failed to relieve symptoms, I determined to open the ethmoid cells, which was done on both sides by means of the Jarvis snare. The convex face of each middle turbinated body, being removed in this way, revealed on each side a number of large, soft, semi-translucent, gelatinous polypi, which were extracted by means of the snare and curette in a number of sittings. The result in this case was an entire cure.

The second case of this variety which came under my observation was subjected to similar treatment, with probably equally favorable results, although this patient did not return for inspection.

I have thus divided my cases into five varieties. As before stated, the second variety is undoubtedly a later stage of the first, while the fifth variety is probably a later stage of the fourth, thus giving us practically three classes of cases which present distinctive features, which ordinarily should be recognized by careful examination, these three distinct varieties being extracellular myxomatous degeneration, purulent ethmoiditis, and intracellular myxomatous degeneration.

As to the cause of myxomatous degeneration, whether intracellular or extracellular, I have no suggestion to offer. In cases which have come under my observation the disease seems to have developed without any traceable cause. As regards the purulent ethmoiditis, as we have seen, in all of the thirteen cases which I have recorded, it occurred in connection with nasal polypi, and in seven there was antrum disease. This would suggest, perhaps, a certain substantiation of Woakes's theory, that all nasal polyps are due to a necrosing ethmoiditis. I have elsewhere taken decided issue with this view of Woakes's, and it seems to me that a more careful consideration of these cases would lead to the suggestion that, instead of the polyps being the result of necrosing ethmoiditis, the ethmoiditis was rather the result of the polyps. This view is certainly emphasized when we consider that more than half our cases of ethmoid disease with polyps have been complicated with antrum disease. As we know, the starting point of nasal polyps, in the very large majority of cases, is in the hiatus semilunaris, in which the orifices of both the antrum and anterior ethmoid cells meet. The first effect, therefore, of the development of nasal polyp would be the setting up of mechanical obstruction to the exit of the normal mucous secretion from both these cavities. The natural result of a damming back of a mucous secretion is the development of a purulent inflammation. I take it, then, that the origin of both the antrum and ethmoid disease lies in the mechanical obstruction which is caused by the presence of the nasal polypi, and that these growths are the cause, therefore, and not the result, of the ethmoid disease.

It might seem that that variety which I have designated as extracellular myxomatous degeneration, either with or without purulent ethmoiditis, is the early stage of nasal polypus, therefore reducing our varieties to but two, and yet a number of the cases of the extracellular myxomatous degeneration which have come under my observation have persisted for ten, fifteen, or twenty years without developing genuine nasal polypi. Hence I am disposed to think that the broad and diffuse myxomatous degeneration, while developing occasionally small, sessile polyps, constitutes an entirely distinct variety.

I have thus presented an analysis of my cases, with an attempt at classification, which, while perhaps not perfect or entirely clear, may serve in some small way to eliminate from our nomenclature that very general and unscientific term "ethmoid disease," and help us perhaps to a more definite designation and classification of the various affections which we encounter in the ethmoid cells, and certainly enable us, with this diagnosis, to give more intelligent opinions and to arrive at a more definite prognosis, and undertake the treatment with a clearer apprehension as to what results can be counted upon.

Perhaps the most interesting point in this connection, certainly the most important, has to do with the question of diagnosis and treatment. In the first variety which I have described—viz., extracellular myxomatous degeneration without pus—the diagnosis must be based entirely on the swollen condition of the middle turbinated bone, together with the gross appearances of the mucous membrane covering it, which presents the pale, bluish-gray color so characteristic of myxomatous degeneration, the appearance being practically that of an ordinary nasal polyp. Its immobility, however, as determined by the probe, easily demonstrates the condition to be one which is confined to the mucous membrane alone. I have never seen this appearance in any case in which I was not convinced that it indicated a diseased condition of the ethmoid cells.

In those varieties of the affection which are attended by purulent discharge, whether in connection with simple myxomatous degeneration or with nasal polypi, the diagnosis is made by carefully tracing the source of the purulent discharge and eliminating the possibility of its arising from the maxillary sinus. If the anterior ethmoid cells are involved, the exit of the pus into the nasal chambers, of course, is from beneath the middle turbinated bone, the same point from which pus from the antrum escapes. In such a case the diagnosis can only be made after eliminating the question of antrum disease by opening this latter cavity and subjecting it to proper irrigation. If the posterior ethmoid cells are the source of purulent discharge, this can be determined by the fact that the exit from these cells is upon the upper surface of the middle turbinated body.

In sphenoidal disease the source of the pus discharge is also above the middle turbinated, but in this affection it makes its exit so far back as to practically drain into the naso-pharynx, whereas in disease of the posterior ethmoidal cells the pus drains into the nasal cavity at a point easily observed by direct ocular inspection through the nostril—viz., at a point about the junction of the middle and posterior third of the middle turbinated body.

As regards the question of diagnosis in the intracellular variety of myxomatous degeneration, whether with or without pus, this can only be determined after opening the cells by removing the cap of the middle turbinated body.

Of course, in all that has been said above we have taken the ground that the ethmoid cells practically extend so far beneath the middle turbinated body as that, by removing the convex bony shell which forms this body, free access is obtained to the ethmoid cavities. When this is not the case it is a very simple matter to enter the cells with the electric burr after the bony shell has been removed; a small, strong curette also answers admirably for this purpose.

As regards the treatment of the disease, as is easily inferred from what has been said before, this consists in freely opening the cavity by means of the snare or other suitable instrument, and subsequently removing the diseased tissue, as far as possible, by means of the drill, burr, or curette. Where the disease is purulent in character we have to do with an affection which consists essentially of a purulent inflammation of the mucous membrane lining a number of small cavities, and the indication for treatment consists in opening every individual cell which is involved in the purulent process. Whereas in my own hands the burr and drill have been of notable service, I should probably give the preference in usefulness to the small spoon-shaped curette, which can be used with considerable freedom, and, although necessarily painful, has never in my hands been attended with any bad results.

I have made no special reference in the foregoing to the question of carious bone. In none of the cases which I have met with has there been any extensive caries or necrosis; and yet necessarily many of the small partitions which constitute the trabeculæ of the ethmoid are in a more or less completely necrosed condition, as shown by the use of the probe. This, however, does not in any way complicate the prognosis or treatment.

ORTHOPÆDIC SURGERY:

ITS DEFINITION AND SCOPE.*

By V. P. GIBNEY, M. D.,
PROFESSOR OF ORTHOPÆDIC SURGERY, NEW YORK POLYCLINIC;
SURGEON-IN-CHIEF TO THE HOSPITAL FOR THE RUPTURED AND CRIPPLED;
ORTHOPÆDIC SURGEON TO THE NURSERY AND CHILD'S HOSPITAL.

At the last meeting of the International Medical Congress in Berlin, August 5, 1890, Dr. Newton M. Shaffer, of New York, presented before the Orthopædic Section a paper with this title: What is Orthopædic Surgery? As I listened to the paper on that occasion, it occurred to me that the author took too limited a view of the scope of this specialty. It seemed that he desired, so far as he was personally concerned, to limit his colleagues in this branch of surgery to splints and straps and buckles. The same impression, I learned, was made upon other members of this association, and many of us naturally felt aggrieved. After the publication of the paper I took occasion to read it quite carefully, and I confess that the impression formed after reading the paper was quite different from that formed at the congress. In the first place, on page 4 of the reprint I find the following: "And the writer desires to state that the opinions here expressed are his personal views only, and that the committee appointed by the Orthopædic Section of the New York Academy of Medicine (of which the writer has the honor to be a member) is in no way responsible for them." Again, from page 12 I make this quotation: "In short, it seems to the writer that the orthopædic surgeon should take a step *in advance* of the general surgeon, and that his education should include all that is necessary to make a general surgeon, before his study of mechanico-therapy is commenced." On this same page, but just preceding the paragraph containing the above quotation, occurs Dr. Shaffer's definition: "Orthopædic surgery is that department of general surgery which includes the prevention, the mechanical treatment, and the operative treatment, of chronic or progressive deformities for the proper treatment of which special forms of apparatus or special mechanical dressings are necessary."

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* Read before the American Orthopædic Association at its fifth annual meeting.

It is safe to assume that every member of this association is prepared to subscribe to the greater part of this definition. Take, for instance, "that department of surgery which includes the prevention." We understand that to prevent a deformity a good knowledge of the clinical history of joint disease, of paralyses, of many progressive nervous diseases, is by all means necessary. This is why many of us never lose an opportunity to make a plea for early diagnosis. Take, for instance, the "cerebral paralyses of children." Why is it not possible to prevent the drop-wrist and the club-foot that result from many of these paralyses? If an opportunity were afforded for an early diagnosis of the brain lesion which produces these paralyses, the means would surely be found to prevent the deformities which follow. Suppose we found ourselves enjoining or advising in the consulting room absolute rest, the administration of ergot or bromide of potassium, would it be unorthopædic to resort to such means? We know full well that many of us would be prepared with specially devised splints to oppose muscular contracture.

Take even pseudo-hypertrophic paralysis. A neurological colleague has recently asked me to operate on the Achilles tendons in a case of this kind in order to correct the deformity. Why can not means be employed for the prevention of this form of equinus? In "Dupuytren's contraction" an early recognition of the disease of the fascia which contributes to the production of the deformity would enable us to prevent a most distressing state of affairs. I might continue to enumerate other deformities which do come under the care of the orthopædic surgeon, requiring both operations and apparatus to secure the best possible results. My aim, however, is to analyze the definition given.

Of the many joint and bone lesions that prevail in large cities an early diagnosis may lead us to adopt means not always mechanical that will prevent deformity. I doubt, therefore, whether the final clause strengthens the definition. It certainly, in my judgment, renders the whole definition ambiguous. Suppose it read as follows: "Orthopædic surgery is that department of surgery which includes the prevention, the mechanical treatment, and the operative treatment of chronic or progressive deformities." The paragraphs which follow, I think, give this impression: that, in the author's opinion, no surgery is orthopædic unless it has to do with special forms of apparatus; that the orthopædic surgeon should not attempt to correct a deformity unless he requires a special form of apparatus. It matters little, therefore, how skillful one may be in the use of the knife, how thoroughly he understands the position in which a limb should be maintained after its correction. Our author, I fear, would have us believe that all this knowledge goes for naught unless perchance a splint is needed to complete the cure.

I am convinced that the members of this association look upon the operative, as well as the mechanical, treatment of deformities as legitimately within their province. In the Out-patient Department of the Hospital for the Ruptured and Crippled cases present quite frequently illustrative of the necessity of supplementing operative procedures with apparatus. A knee, perhaps, has been excised by a surgeon in a general hospital. The immediate results have been brilliant, every focus of disease seems to have been removed, an inefficient splint has been applied, and the patient has been discharged. Weeks or months afterward the deformity has recurred—a deformity which requires months, sometimes years, to correct. A hip joint has been excised. The temperature chart of the hospital where the excision was done is all that one could wish, yet the deformity is by no means corrected. The child walks on a crutch with a shortened and distorted limb. Some hideous cases of deformity in diseases of the ankle joint have come under observation in the Out-patient Department after thorough operations in a general hospital. Relapsing cases of club-foot after the most approved operations are a matter of common observation.

It is not my purpose in this paper to narrate these cases. I want simply to let the profession understand that orthopædic surgery has no fight with general surgery, and lays no claim to operative procedures that legitimately belong to the general surgeon. The orthopædic surgeon should be prepared to get the best possible results. If splints fail to correct deformity, then the knife should supplement. If the end of the bone, or the shaft even, is so hopelessly diseased that the life of the patient is jeopardized, then this bone should be removed, and immediately after its removal the limb should be placed in the best position and so maintained during the reparative process. Our fight is with disease and with deformity that follows disease, with deformities that are congenital and deformities that are acquired. In some hospitals, where the general and the orthopædic surgeon can work hand in hand, there is no objection to the orthopædic surgeon having the general surgeon do his operating.

The author from whom I have quoted so liberally makes the following statement on page 14: "The remark of a prominent general surgeon to the writer, after reading the last work on orthopædic surgery, is not, perhaps, so much out of place. He said: 'The next work on orthopædic surgery will likewise tell us all about fractures and dislocations.'" I am sure the next work on orthopædic surgery will tell us how to relieve old intracapsular fractures of the neck of the femur. It will tell us, I am sure, how to correct the deformities that follow badly united fractures and poorly replaced dislocations. The next work on orthopædic surgery, I am sure, should tell us how to cure congenital dislocations of the hip. Of the technique of operations, of course, our information can best be obtained from works on general surgery, but the after-treatment of many of these orthopædic cases should be taught us by the orthopædic surgeon.

I quite agree with Dr. Shaffer in deploring the rules of general hospitals, which rules prevent the retention of the patient long enough to secure the best results. Men the world over, I know, are too fond of brilliant operations.

They like quick results. Typical healing is the great desideratum of the surgeon the world over.

Let us for a moment consider what is understood by the terms "chronic or progressive deformities." These may be classed in a general way under congenital or acquired. Torticollis, hare-lip, spina bifida, congenital dislocations, joints whose development has been arrested, the various forms of club-foot—these, in general terms, belong to that class termed congenital.

Of the acquired forms, we have the various distortions of joints dependent upon epiphyseal disease, upon periarticular disease, and upon neuroses. We have the deformities which result from the various paralyses, from badly united fractures, from extensive burns or wounds of any kind that shorten the muscles and fascia, the deformities of the spinal column which result from disease or from muscular or bony asymmetry.

The specialty we have adopted as a calling is as yet in its infancy. It grew out of general surgery. The most brilliant results were attained within less than a century ago by men who really knew very little about apparatus. The term itself, as our president has reminded us in his address, is derived from Greek words that mean to educate or to train up straight. Just as surely as we limit our work to the correction of deformities by means of apparatus and do not fit ourselves for operative procedures, just so surely will our specialty take a low rank in the profession. In the city of London, instrument makers, I am led to believe, are looked upon with more favor than professed orthopædicians. At the last International Congress, before the Orthopædic Section, fully nine tenths of the papers presented at that meeting dealt with operative procedures for the correction of deformity.

In New York, thanks to the labors of Davis, Bauer, Sayre, and Taylor, mechanico-therapy has taken a higher position than it has in any other city on the face of the globe. I respect these men for their work. It is good to have demonstrated the excellent work that can be accomplished by appliances alone.

The diseases and deformities with which we have to deal are necessarily limited. It is all very well to talk about showing respect to the general surgeon and turning over operations to him. He never hesitates to do what we term an orthopædic operation. The cards announcing operations at many of the hospitals in New York are seldom posted without operations like the following: "For talipes equino-varus"; "for knock-knees"; "for bow-legs"; "for excision of the hip"; "for tubercular disease of the tarsus"; "for torticollis." It is true that the majority of our patients are sent to us by our professional brethren, yet comparatively few, I think, are sent by the general surgeon. It is the family practitioner who recommends cases to the specialists or fellow-specialists who do this sort of work. I am sure our colleagues would respect us more if we were competent to take charge of a case from beginning to end, if we were able to recognize early a disease which produced deformity, and by this timely recognition prevent a deformity, whether we used appliances or not. They would respect us more if we were able to conduct a case of hip disease, for instance, to a successful issue if we did get it after deformity had arisen. No one, I take it, has disputed the necessity for a thorough education as a surgeon. Even my friend Dr. Shaffer states in his article that the orthopædic surgeon should first be a good general surgeon, should be educated in surgery before he attempts orthopædic practice. With this education, then, it is easy for the orthopædic surgeon to keep abreast with operative procedures; it is easy for him to keep informed of those operations which most speedily and successfully correct deformities. He it is whose judgment will enable him to decide whether an operation is necessary, what kind of an operation is necessary, and what apparatus is needed to secure the best possible results after operation. Let us, then, divest ourselves of all this sentiment and prepare ourselves to accept that enlarged definition of orthopædic surgery which is: *that department of general surgery which includes the prevention, the mechanical treatment, and the operative treatment of chronic or progressive deformities.*

USEFUL DEDUCTIONS DERIVED FROM THE STUDY OF A CASE OF

CICATRICIAL CONTRACTION OF THE LARYNX

POSSESSING UNUSUAL CLINICAL FEATURES,

*WITH EXHIBITION OF SPECIMEN.**

By W. C. JARVIS, M. D.,
NEW YORK.

In presenting the subject just announced I am not unmindful of the fact that cases of cicatricial contraction of the larynx as commonly observed are to be viewed as neither novel nor unique, nor indeed would a pathological specimen of this kind ordinarily possess a sufficient degree of interest to warrant the appropriation of the time and attention of this important division of our great triennial congress. Nevertheless, I am convinced that it will be conceded that the history, and perhaps also the specimen I am about to present, possess clinical features, both novel and instructive in character, which, taken into consideration with the deductions and thoughts suggested thereby, have encouraged me to confidentially lay this matter before you.

The subject of this sketch was a gentleman, sixty years of age, who first came under my observation March 31, 1888, and was last seen by me in about March, 1891. He was kindly referred to me by Dr. Laurence Johnson, of New York. When first seen by me he detailed his history in a strained, raucous, but easily intelligible voice. Its salient points were substantially as follows: Almost ten years had elapsed since the first signs of a nasal and throat disease had become manifest. The nasal malady advanced with great rapidity, involving the hard as well as soft parts, as was clearly shown by the escape of fragments of dead bone from the nasal cavities. As a natural result, the two nasal cavities were rendered continuous. Energetic means had been employed to combat these ravages—such as the cautery and similar local measures, combined with a mercurial and iodide-of-potassium course of treatment—but without apparent result until the space of a year had been allowed to elapse. Severe headaches, alternating with attacks of vertigo, increased the misery occasioned by the local disease. Of the greatest concern, however, was the suffering caused by the recurrence of certain suffocative attacks. During one of these he was almost reduced to a state of utter helplessness and insensibility, and actually despaired of life. He is still subject to these suffocation symptoms, and at times is aroused from a deep slumber by a dreadful sense of impending strangulation. Asthmatic attacks have also contributed to make his life miserable. Inquiry elicited the information that when only twenty years of age he had acquired a lesion which his physician had pronounced to be syphilitic in character; he is confident, however, that he has been reinfected since this period. Another reminiscence of his earlier manhood possessing a certain amount of clinical value was the history of the receipt of a crushing blow upon the nose, sufficiently severe to reduce him to a state of unconsciousness.

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* Read before the American Laryngological Association at its thirteenth annual congress.

An examination of the external nose demonstrated the nasal vestibule to be preternaturally narrowed, its graceful symmetry being largely lost by reason of cicatricial contraction, as proved by the presence of scar tissue in and about the vestibule. Scar tissue likewise afforded evidence of pre-existing ulcerative processes in the pharynx and nares proper. The extraordinary extent of the nasal disease was evidenced by the discovery of a perforation of the nasal sæptum. A laryngeal examination, of more interest to us in this connection, likewise afforded indubitable evidence of the fearful ravages wrought by the pre-existing ulcerative disease. The epiglottis appeared as a small, irregular mass of cicatricial tissue. It might perhaps have been more properly termed a cartilaginous remnant, having a form not unlike that of a Phrygian cap, its surface, as was proved by subsequent examinations, being sometimes lighter and at other times ruddier in color than the normal epiglottic mucous membrane. This structure was markedly depressed and partly overhung and concealed a very much reduced laryngeal orifice. The free edges of the false and true cords and the shadowy entrances to the ventricles, as usually observed in the laryngeal image, were entirely absent. The familiar irregular outlines of the arytænoids were replaced by two irregularly rounded prominences which I properly inferred were the sites of the arytænoid cartilages. Instead of the triangular outlines of the rima glottidis, there was a delicate circular aperture, which, but for its location, would have failed to suggest in any way the normal entrance to the larynx.

The diagnostic significance of the clinical manifestations and pathological peculiarities I have just described coincide with those commonly observed in advanced syphilitic disease of the upper air-passages. The cicatricial lesions, like the fantastic irregularities of an extinct volcano, served here to vividly impress the observer with the apparently tremendous extent of the original syphilitic eruption. Taking into consideration the history of the patient and the pathological findings I have just noted, we would be naturally led to conclude that the ulcerative processes commenced in the nasal cavities, and upon the sæptum in particular, and, extending from this point, they ultimately implicated the pharyngeal and laryngeal structures. Dismissing the consideration of the nose and pharynx with this brief diagnostic mention, I shall address my attention to the larynx, which need only be of especial interest to us in this connection. That the syphilitic ravages were especially severe in the larynx was apparent, as evidenced by the extensive implication of the epiglottis, which, as I have already explained, was reduced to an insignificant-looking cicatricial stump. It seems highly probable, in view of the extent and character of the cicatricial changes, that, in accordance with the views of Virchow and Mandl, gummatous masses must have originally occupied the site of the diseased structures, the unusual degree of the cicatricial contraction being due to the extraordinary depth of the tertiary ulcers resulting from the breaking down of the gummata. The ulceration and healing processes were largely expended upon the epiglottis and ventricular bands, and to a much lighter degree upon the true cords. Although the vocal cords were invisible by reason of the extreme narrowness of the laryngeal orifice and distortion of the epiglottis, their existence in a fair state of preservation was proved by the patient's ability to intelligibly phonate, and observation subsequently verified by an examination of the exsected larynx.

The history of the receipt of a crushing blow upon the nose, already noticed by me, may possess a certain amount of clinical significance, as bearing upon the ætiology of the intranasal disease and disorganization of the sæptum. It is safe to infer that a sæptum deflected to a point of impact with the lateral nasal wall constitutes a starting-point for the extension of a morbid process. That the resultant disease was originally catarrhal is demonstrable, and that the irritating contact of the deviated sæptum against the pituitary membrane by provoking extraordinary disturbance may provide a favorable point for the local manifestation of a constitutional dyscrasia, as evidenced in the perforation of the septum, it is fair to assume in the light of common clinical experience in this class of cases.

The recurrent suffocative attacks evidently emanated from one or more of several ætiological factors—such as the occasional entrance of liquids and food particles into the larynx during the act of deglutition, through the insufficient protection afforded this cavity by the deformed epiglottis; irritative inspiratory laryngeal spasm, induced by preternatural dryness of the mucous membrane lining the contracted rima; the presence of extralaryngeal mucus within the excessively narrowed glottic opening; and periodical attacks of subacute catarrhal congestion of the endolaryngeal mucous surfaces. The association of this last-named condition with these recurrent attacks of dyspnœa was observed on several occasions.

With regard to the treatment, I must first explain that the condition of the patient when first seen by me was sufficiently encouraging to give rise to the hope, which was subsequently verified, that relief might be obtained by resorting to purely palliative means, in contradistinction to the employment of extreme operative measures. The formation of this belief was materially influenced by the remarkable self-control exhibited by the patient when suffering from temporary respiratory embarrassment, and his well-nourished appearance, despite the extent, or rather effects, of the disease.

Having observed that urgent dyspnœic symptoms were frequently ushered in by the patient evincing a sense of dryness in the larynx, I naturally inferred that a good lubricant was especially indicated. To attain this object I had recourse to vaseline and its derivatives, charged with appropriate soothing medicaments and oils. These unguents were applied by direct and indirect atomization and at frequent intervals, the patient having provided himself with a suitable system of compressed-air apparatus. Sometimes he swallowed small lumps of vaseline, which he declared afforded pronounced relief from this sensation of dryness. The best results, I think, were obtained from the inhalation of melted nebularized vaseline jelly.

During the occasional periodical exacerbations of extreme dyspnœa most excellent results were obtained from the internal administration of repeated doses of iodide of potassium, a drug which was fortunately well borne by the patient. This remedy, when promptly employed, frequently afforded relief from these attacks in a few hours, the good results sometimes lasting several weeks. By the employment of these and similar means I was enabled to keep the patient comparatively comfortable for a period extending over more than two years—in fact, up to the present year, when his paroxysms became sufficiently aggravated and unyielding in character to compel me to refuse to promise further benefit from the employment of palliative measures, to advise the performance of an early tracheotomy, and to warn him of the danger of delay. My note of warning or his own fears impelled him to consult several physicians, two of whom, members of this association, I am glad to say, agreed with me, and I was informed as to the urgency of an external operation. One prominent practitioner, however, differed with us in recommending an internal procedure—namely, the practice of laryngeal intubation—concerning the inadvisability of which, in this case, I shall have something more to say.

This was the situation in April of this year, when I was interviewed by a member of the sick man's family, who manifested much uneasiness by reason of the severe embarrassment exhibited by the patient in his efforts to breathe. A serious suffocative attack seemed likely to occur at any moment, and the sufferer sent word that he was perfectly willing to accept my oft-repeated advice and submit to the inevitable tracheotomy. An appointment was promptly made, my instruments were collected, and the hour for the train to depart was impatiently awaited, and had in fact almost arrived, when a telegram came instructing me not to start.

A letter soon followed this telegram containing profuse apologies for any useless trouble that might have been caused, and explaining that a remarkable improvement in the character of the respiratory symptoms had induced him to postpone submitting to an operation. A few days subsequent to the receipt of this communication I received word that the patient had quietly passed away. The following extract, taken from a letter kindly addressed to me by Dr. Kane, one of the physicians indirectly interested in the case, furnishes some interesting information concerning the patient's final illness and death:

"Toward the end of March (*i. e.*, 1891) Mr. —— had a severe attack of gastro-enteritis which lasted up to and was the principal cause of his death. At times he showed signs of improvement, but this was always followed by a relapse. During his sickness he suffered from dyspnœa to such an extent that he got little sleep, which no doubt hastened his end."

An examination of the dead man's larynx, which was removed with the upper portion of the trachea and kindly sent to me by one of the physicians in charge, revealed a small pointed projection overlapping the introitus laryngis which I recognized as the original epiglottis. Just below I observed the arytænoid prominences as two elevations lacking in all of the delicate angular features that usually contribute to make up the symmetry of the normal arytænoid.

The clear longitudinal outlines of the normal ventricular bands were replaced by a circular depression, the center of which constituted all that remained of the original rima, an insignificant chink measuring hardly an eighth of an inch in diameter.

The true vocal cords, though more or less thickened and infiltrated, substantially retained their ordinary outlines. Viewed from below, a circumscribed aggregation of warty-looking organized, granulation tissue occupied the subchordal interspace. The trachea exhibited no signs of contraction or disease.

To recapitulate, the main points of interest in this case, it seems to me, lie in the somewhat lengthened and comparatively comfortable survival of the individual, despite the extreme narrowness of the laryngeal portion of his respiratory tract. The degree of this reduction is more readily appreciated by recalling to mind the ordinary diameters of the normal rima glottidis, its longitudinal measurement being fixed by Moure at between twenty-three and twenty-seven millimetres—say about an inch—and its transverse we may place at between a quarter and half an inch. Comparing these dimensions with that of the specimen before us, which I may safely place at an eighth of an inch or about that of the thickness of an ordinary lucifer match, some idea of the variation from the normal can be formed, though I, of course, realize that there may have been some ante-mortem or post-mortem swelling. As I have already remarked, the majority of the consultants visited by the patient concurred in urging the advisability of a tracheotomy procedure being undertaken for the relief of the respiratory embarrassment. One distinguished consultant, however, differed with the majority in recommending the practice of laryngeal intubation. Without desiring in any way to belittle the inestimable value of this great therapeutic measure, I feel compelled to question the advisability of its employment in this case. I am, furthermore, confident that the gentlemen who had an opportunity to examine the living larynx, recalling to mind the inaccessibility of the deformed larynx and epiglottis and the speedy supervention of alarming inspiratory spasm under the slightest provocation, will agree with me as to the inadmissibility of intubation. With regard to the formidable proportions assumed by the permanent results of the syphilitic disease, I have reason to doubt as to the patient having received the fullest benefit from local and constitutional medication in the earliest periods of his disease; for, while reminded, by a series of cases of advanced ulcerative syphilis which I can not here describe, of the difficulty sometimes encountered in controlling these pathological processes in certain cachectic conditions, I have always been, as you may remember, a strenuous advocate of the prompt and permanent beneficial results attained by careful treatment of the nasal manifestations, a result certainly not borne out in the history of this case.

With regard to the action of the potassium iodide, it was generally assumed by the several physicians interested in this case that the pulmonary asthmatic symptoms were purely due to the existence of a chronic emphysema. In a society discussion, recently published, the eminent American syphilographer, Dr. R. W. Taylor, was reported as having given utterance to the following statement: "In pulmonary syphilis the correctness of the diagnosis could often be established by the results of treatment. We not infrequently heard of patients being cured of asthma by the iodide of potassium, and, when this was the case, there was no doubt whatever but that the asthmatic trouble was of syphilitic origin."

Recalling to mind the extensive pathological lesions observed in the upper air-passages during the lifetime of this patient, and comparing them with the laryngeal lesions described by me as having been revealed by the post-mortem, strong presumptive evidence seems to exist in favor of the view that the asthmatic symptoms were in part actually attributable to syphilitic disease of the lungs. In quoting and utilizing Dr. Taylor's important assertion, I am not unmindful of the fact that benefit has been alleged to have been obtained from the production of iodism in purely nonspecific cases. Did time permit, I might cite a remarkably pronounced case of combined syphilitic pulmonary and laryngeal disease which came under my observation.

The following conclusions seem to me to be justified by the foregoing subject-matter, viz.:

That life may be sustained for years, though breathing is conducted through an aperture sufficiently small to be pronounced totally inadequate for respiratory purposes, provided due diligence and presence of mind are exercised and careful nasal breathing is resorted to.

That, contrary to what might naturally be expected, death in these cases may result from exhaustion, instead of strangulation.

That pronounced relief in these cases can be derived from the use of local agents, and particularly by utilizing the lubricating action of certain anatomized unguents.

That, when local means fail to relieve the dyspnœic symptoms due to syphilitic stenosis of the larynx, relief may be reasonably expected from the internal administration of iodide of potassium.

That the marked relief obtained by the internal exhibition of this remedy in pulmonary as well as laryngeal asthma affords strong presumptive evidence of the coexistence of disease of the lungs.

That tracheotomy should be performed in these cases at a time carefully determined by the signs and symptoms, laryngeal intubation being contra-indicated on account of the extreme narrowness and dense character of the cicatricial formation and the ready provocation of irremediable inspiratory spasm.

That the unconditional co-operation of the patient is demanded to secure the best results.

142 MADISON AVENUE.

A CASE OF THYREOTOMY IN A CHILD EIGHTEEN MONTHS OLD.*

By CLINTON WAGNER, M.D.,
NEW YORK.

At the eighth annual meeting of this association I presented a paper on Thyreotomy,† in which I reported the cases of three very young children upon whom I had successfully operated. Thyreotomy should only be resorted to for the relief of urgent dyspnœa arising from laryngeal obstruction caused by the presence of benign neoplasms or a foreign body, and in which the operation *per vias naturales* is inadmissible or impracticable.

In cases of malignant growths it should only be performed when there is a reasonable possibility of eradicating the disease thereby.

In tuberculosis, in my opinion, the operation is unjustifiable, and death, which is inevitable in these cases, is likely to be hastened by it. The danger to life from the operation itself is, I think, very slight. I have performed the operation ten times, six times for malignant growths, in all of which the disease recurred and resulted fatally, although in no single instance was death caused by the operation, as the patients survived from six months to two years. The four remaining patients—children—recovered.

With the exception of two, all of the operations were performed at the Metropolitan Throat Hospital.

The following case is of interest on account of the age of the patient—eighteen months—the youngest of which we have record:

In January, 1889, the patient, who was supposed to be suffering from asthma, and in size no larger than children usually are at about ten months, was brought from Florissant, a small village in the Rocky Mountains, to Colorado Springs, for treatment. Dr. Garnett referred the case to me for opinion and treatment.

The following history was given: The child almost from birth had been neglected by its parents, and when it was about ten months old they deserted it; neighbors found it in the yard in the rear of the house, where for many hours it had been exposed to cold and wet weather. From this exposure a severe cold was contracted, which resulted in permanent hoarseness. About three months before I saw it dyspnœa began, which gradually increased in severity. When the child was brought to me the dyspnœa was very marked, the slightest excitement increased it, and spasms of the glottis were frequent, especially during the night, and were alarming in their intensity. There was complete aphonia.

An examination with the mirror was impossible. Merely approaching the child caused it to struggle, and in its struggles spasm of the glottis was invariably brought about.

Carefully observing the child when quiet and undisturbed by excitement, I became satisfied that the obstruction to respiration was laryngeal and not thoracic. I decided therefore to perform tracheotomy, and, if relief to respiration was obtained, to follow it with thyreotomy, for the purpose of removing the obstruction, which, of course, was either a growth or web of false membrane. Immediately upon the introduction of the cannula the relief in respiration was quite apparent, but, as the child was in an extremely weak condition from long deprivation of a proper air supply and but illy nourished, I decided to postpone the thyreotomy until it had improved in strength and general health.

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* Read before the American Laryngological Association at its thirteenth annual congress.

† The author requests us to state that in his manuscript he spelled this word *thyrotomy*.—EDITOR.

Two weeks later I performed the thyreotomy in my usual manner, commencing the incision at the thyreoid notch and extending it downward through the crico-thyreoid membrane and cricoid cartilage to the cannula.

I found upon the left vocal cord posteriorly a papilloma of about the size of a small pea, which I removed entirely. The wound healed kindly, and in about ten days after the operation the good people who had humanely adopted the child as their own were compelled to return to their home, and declined to leave the child in the hospital, promising, however, to return at an early day.

I was in no haste to remove the cannula, preferring to be first assured in this, as I had been in my other cases, that the laryngeal obstruction had been thoroughly removed and that respiration was unimpeded. Accordingly, I instructed the father to insert, a month after the operation, a tightly fitting cork into the cannula in order that respiration might be carried on through the larynx. This was done. The cannula used had no fenestra; consequently, the cork closing the entrance to the tube completely, respiration was maintained altogether through the larynx, the air passing upward and outside of the tube, proving that the larynx was quite free from obstruction of any kind. The cork was removed occasionally in order to cleanse the inner tube of the secretion which had collected in it.

I was compelled to be absent from Colorado Springs during the spring, a greater part of the summer, and also the autumn. Upon returning to Colorado I went to Denver.

In consequence of being seriously ill for many weeks, I was unable to have the child brought me for the purpose of removing permanently the cannula; finally, when I had recovered sufficiently to give my attention to the child, I wrote the father to bring it to me.

In his reply to my letter he stated that the child was in excellent health, that he breathed without difficulty through the mouth and nose, and that voice was returning to him. He named an early day on which he would bring him to me.

A few days later he again wrote, stating that the little fellow had just died, after a very brief illness, from the grippe, which at the time was very prevalent throughout Colorado.

The child lived eleven months after the operation; it gained greatly in strength and weight; its respiration for months previous to its death was through the larynx, and not through the tube, and its voice was beginning to return.

Although an unfortunate combination of unforeseen circumstances prevented the permanent withdrawal of the tube in this case, I think it may justly be regarded as a successful thyreotomy in its results and in the youngest patient of which we have record.

The Southern Surgical and Gynæcological Association will hold its annual meeting in Richmond, on Tuesday, Wednesday, and Thursday, the 10th, 11th, and 12th inst., under the presidency of Dr. Louis S. McMurtry, of Louisville.

A CASE OF SUPPOSED NASAL TUBERCULOSIS IN A MONKEY.*

By E. L. SHURLY, M. D.,
DETROIT.

I PRESENT the following history of an interesting case of what might be called nasal tuberculosis in a monkey:

Last October I obtained from a "museum" a "spider monkey" which was very ill and emaciated, suffering with a profuse discharge from the nostrils, and consequent difficulty of breathing. There was no cough, no paroxysmal dyspnœa. The animal had little appetite for solids, but was always eager to drink, which of course he could only do with difficulty. There was occasionally an elevation of temperature. A large quantity of a glairy discharge was ejected daily. The diagnosis of the menagerie men was tuberculosis, which was confirmed by a microscopical examination, revealing tubercle bacilli in large numbers. We determined to treat him exclusively by inhalations of chlorine gas and chloride-of-sodium water, which was done by placing him in the gas-cage from three to five minutes twice daily. He was given also a good nutritious diet, generally fed with a spoon by our faithful William (the care-taker of the animals), who soon became very much attached to him. This treatment was kept up with good results throughout last winter up to July of this year, when the animal was killed with chloroform. At that time he ate well, was stronger, while the discharge from the nostrils was greatly diminished. From time to time the inhalations were reduced in number, and even stopped, sometimes for a week or two (during the spring and summer). Whenever he was actively treated in this way the tubercle bacilli would disappear, but when the treatment was stopped for a week they would reappear.

Of course we entertained no doubt of the tubercular nature of the malady. Judge of our surprise when the post-mortem examination revealed no microscopic evidence of tuberculosis anywhere, not even in the turbinated bones, although all the bony parts of the nasal passages were softened. However, Dr. Gibbes, at my request, went over the subject again, and his report from Ann Arbor was as follows:

I have examined monkey G., and am fairly puzzled by the appearances presented.

1. The nasal region: I have made sections from ten different parts, and can not find a trace of tubercle; the whole of the epithelium is gone, and there is chronic hypertrophy of the submucous tissue with what appears to be hypertrophy of the spongy bones, or rather a formation of cartilage rising from the bone; the intertrabecular spaces of the cancellous tissue are filled with a fibrous-looking tissue, and near the inner surface of the nasal passages show signs of an acute or subacute inflammation. I could find no epithelium there.

2. The lungs nowhere showed a tubercular formation, but some inflammatory changes, and in a few places some small masses of a dense homogeneous material looking like a clot. This is, I think, thrombosis.

3. The spleen presents no appearance of tubercle, but all through the cortex has the look of inflammation and contains several homogeneous patches similar to those found in the lungs.

4. Liver: All through the interlobular tissue and around the intralobular veins of the liver there is a formation of new tissue consisting of cells and a small amount of stroma. What this

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* Read before the American Laryngological Association at its thirteenth annual congress.

tissue is I can not quite make out; it looks very like syphilitic tissue as found in the human subject.

5. The kidney shows the same sort of new tissue around the blood-vessels as that found in the liver; and at the hilum it is very strongly developed.

6. The intestines show no pathological change.

The inevitable conclusion, it seems to me, from this report, is, that the monkey contracted a severe suppurative inflammation of the nasal passages, including the neighboring sinuses, from the introduction of some parasite or other foreign body. It could not have arisen from the teeth, because they were examined and found normal.

Whether the tubercle bacilli subsequently dwelt there, maintaining a saprophytic existence, so to speak, and whether, if the animal had received no treatment, the microbes would have become fixed in their habitation, are interesting questions. But why the bacilli did not seize upon such good soil and "camp on the monkey's respiratory tract," thereby inducing pulmonary tuberculosis, constitutes the puzzle. From the evidence presented in this case, how can we avoid the conclusion that the presence of tubercle bacilli is not alone an infallible sign of tuberculosis?

Correspondence.

LETTER FROM LONDON.

The Medical Session.—Sir George Humphry on the Pathology of the Future.—Neuritis and Spurious Arthritis.—Dr. W. H. Dickinson on Renal Dropsy.

London, *October 24, 1891.*

The opening of the medical session has been unusually uneventful, and the introductory addresses, which are still inflicted on the students of several of the schools, presented no features of interest or novelty. The entry of new students is a large one, but not so great as was expected, for it was supposed that the near prospect of a five years' curriculum would cause many parents to enter their sons this year so as to be in time to come under the old regulations of a four years' course. St. Bartholomew's, as usual, heads the list with a little over a hundred new students—a small number, however, when compared with recent years. The prospective new university for London students has not cast its shadow before it in the shape of a sudden rush from the provinces to the metropolis.

The medical societies have all got to work now, the Pathological Society being under the guidance of Sir George Humphry, the well-known professor of surgery in the University of Cambridge. His is, I believe, the first appointment as president of a member residing out of London, and he will doubtless find the fortnightly evening meeting a great tax, but, as he served for many years on the General Medical Council and also on the Council of the Royal College of Surgeons, it may be assumed that he does not mind the trouble of a railway journey. In his opening presidential address he said that the basis of the society's work must be made as wide as possible. "Hitherto we have regarded pathology as advanced physiology, and morbid process as a modification of the processes of healthy nutrition; and so in large measure it doubtless is; but we are now advancing into a region beyond the processes of healthy and morbid nutrition into the wide field of the causes of morbid processes, and these, some of them at least, seem to lie outside physiology—that is to say, outside the range of the normal phenomena and the modifications of them, and to depend upon certain agencies foreign to or external to and superadded to the natural phenomena of nutrition. In such light must we view the micro-organisms and their chemical products; and it is with the phenomena of micro-organisms and their ptomaines and the action of these in modifying the nutritive processes, as well as with those modifications and their results, that we are now largely concerned. Thus a new field has been added to pathological investigation—a field of profound importance and of the extent of which we can form no guess."

At the first meeting of the Clinical Society Dr. Maclagan read a paper on Cases of Neuritis and Spurious Arthritis. He had had three cases of neuritis affecting the nerves of the arm, in which the nerve lesion was followed by changes in the joints of the knuckles and fingers. These changes he believed to be non-inflammatory and to consist essentially in contraction and diminution in size of the osseous and ligamentous structures of the joints; the changes, he believed, were the result of malnutrition of these structures, and were produced in the same way as the wasting of the muscles and the glossy skin by which they were accompanied; they had nothing in common with true arthritis, but were connected with the peripheral derangements accompanying peripheral neuritis. His treatment had consisted in forcible movements, with the use of electricity, to restore the tone of the muscles, and gentle massage, and one patient had completely recovered. If the patients were left long without treatment, the joints were liable to remain permanently altered, but the cases were curable if taken at an early stage.

St. Luke's day, October the 18th, is sacred at the College of Physicians to the memory of Harvey, and is celebrated by an oration, which this year fell to the lot of Dr. W. H. Dickinson. Of course the orator always devotes a portion of his address to the memory and work of the immortal Harvey, and it is unnecessary to say that in this Dr. Dickinson performed his task as gracefully as was possible. The special subject he chose was that of renal dropsy. He pointed out that when dropsy supervened the urine was usually below par, but the relation of the dropsy to the quantity of urine was not constant enough to explain the whole process; with obstructive suppression dropsy was usually totally absent, while it was frequently present under the diuresis of diabetes. Such facts must find their explanation in any adequate theory of such dropsies as were not coarsely mechanical, and he suggested that, whether mechanical or not, modifications of blood pressure were largely if not mainly concerned in the dropsical process. Want of urine did not alone and of necessity cause renal dropsy; increased arterial tension seemed to be a necessary intermediary. An increase of arterial tension beginning with the earliest stage of nephritis, accompanying the œdema and increasing with it and the disease, had long been recognized, as also had hypertrophy of the left ventricle, which must be taken as an evidence of an obstruction in front; and the precise question to be determined was whether this impediment existed in the arterioles or in the capillaries. Renal dropsy presumably depended upon excess of exudation, not deficiency of absorption, and this could scarcely occur elsewhere than from the capillaries, whose walls alone were adapted for the process. Whether this was to be ascribed to some change in the blood *per se* or to vascular contraction engendered by it, he left an open point, but with obstruction in the capillaries and increased systolic force behind transudation through them would seem to be an absolute necessity.

The American Association for the Study and Cure of Inebriety, will hold its annual meeting in this city, on Thursday, the 12th inst.

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THE "SLEEPING SICKNESS" OF WEST AFRICA.

Dr. H. Grattan Guinness, of London, has recently visited the Congo Free State, and writes home to Dr. Patrick Manson concerning the "sleeping sickness," as it is termed, among the negroes living along the river Congo. He had an opportunity to investigate the symptoms of twelve or more typical cases. He examined the blood in each of these cases, and found that filariæ were present in all. The most intelligent and brightest members of their tribe or village are frequently among the first to be taken down. Active workers become lazy or, more properly speaking, indisposed to labor, in consequence of the approaching hebetude peculiar to this disease—and then grow physically feeble. They rapidly deteriorate mentally, and frequently there are developed a stubbornness and perversity which weary out their friends. This is especially true of those who refuse to admit that they have been smitten with the malady, though it is all too evident to others. Insidious somnolent symptoms commonly first attract the attention, but perhaps more frequently there is observed a change of countenance, a lack-luster state of the eyes and skin, a puffiness of the cheeks, and a loss of brightness or keenness of perception and attention.

The maniacal form of the disease is quite rare. At a village called Banza Manteka there have been a hundred deaths among the natives by this disease, and in only four of the cases was there a maniacal history. One of these may have been a case of febrile delirium, as death was believed to have occurred from high fever and neglect; the three other victims probably were starved to death.

Thus far the foreigners, whether white or colored, have been exempt from the disease. Dr. Guinness did not find that the disease was known in the towns nearest to the coast. The greatest known prevalence is reported from a village about a hundred and fifty miles up the river Congo. One case only of sleeping sickness has been seen and studied on English soil, and that was the case of a person who died recently at the London Hospital, a patient of Dr. Stephen Mackenzie's. He was a young negro from the middle Congo, who, recognizing the nature and almost certainly fatal issue of his malady, traveled upward of six thousand miles to offer himself, and his body after death, for the benefit of science and of his suffering fellow-tribesmen, his hope being that the English physicians might be enabled to study out the ætiology and prophylaxis of this hitherto incorrigible disease. Dr. Mackenzie has reported to the Clinical Society of London the fact of the occurrence of the *Filaria sanguinis hominis* in the case of this heroic young man, but beyond that item of information no particular advantage has thus far been reaped from his long journey. To this discovery of the filaria Dr. Mackenzie attached very little importance, and in this opinion he was supported by Dr. Patrick Manson, whose authority is exceptionally high in such a matter, and who expressed the belief that the association of filarial infection with the morbid somnolence was non-essential and fortuitous. Whether this opinion will be persisted in when the findings of Dr. Guinness, above referred to, come to be weighed, remains to be seen.

Professor Ludwig Mauthner, of Vienna, has called attention to the reported frequency of ptosis as a symptom of sleeping sickness. Ptosis was present in the London Hospital case, and thus confirms the following theory of Mauthner's as well as the casual statement of Dr. Junker, the African explorer, that this symptom is an important one and is held by the African doctors to be a marked prognostic of the onset of lethargy. Mauthner's designation of the malady is "a chronic endemic morbid somnolence of the negro," and his interpretation of its causation is that it is an inflammatory process affecting cerebral motor areas. In his view, it is a *poliencephalitis superior*, an inflammation of the central gray cavities of the third ventricle, the gray matter of the walls of the aqueduct of Sylvius, and the floor of the fourth ventricle, these being correlative to the apathy, depression, muscular enfeeblement, and lethargy, while an extension of the process of inflammation to the nuclei of the efferent cranial nerves would give rise to the focal symptom of ocular paralysis, inclusive of ptosis. In the absence of an ascertained pathological lesion different from the foregoing, Mauthner's explanation constitutes the most reasonable hypothesis that has hitherto been presented. The endemic nature of the disease is accepted by Hirsch, Corre, Manson, and some others, but that it is not malarial in origin seems to be demonstrated by the fact that, while the Europeans living in the region where this sickness occurs contract the malarial fevers which are abundantly prevalent in the Congo valley, the blacks only are subject to the lethargy. The London Hospital patient gave no history of malarial infection, and an examination of the blood for the *Plasmodium malariæ* had a negative result. Dr. Manson is inclined to the belief that the disease will be found to be a food disease. The traveler Stanley has suggested that the uncooked manioc is the cause of much sickness and death among the natives.

STERILIZED MILK.

In the numerous recent discussions upon infant feeding all the participants seem to be agreed upon the one point that cow's milk or some preparation containing it is the only adequate substitute for human milk. That great advances have been made in our knowledge of foods can not be doubted, but there is much yet to be learned. Theoretically, most of the difficulties have been overcome. We can make a food that chemically is almost identical with normal breast milk, and in many cases it seems almost as good. In other cases the child will not thrive upon it, and in some it is rejected entirely. Dr. Blackader, in the *Montreal Medical Journal* for August, speaks of the hopes he had formed that at last sufficient data were at hand upon which to construct an ideal infant's food. Our knowledge of the composition of the two milks is sufficiently accurate to enable us to change the one so as to make it closely resemble the other. With increased knowledge concerning the amount required at each feeding and with improved sterilizing apparatus the question seemed to be solved. While in some cases where these methods were carried out the results were most gratifying, in others they were disappointing, and in this experience the author is not alone. He attributes this in part to changes which take place in the milk during the process of sterilizing.

Professor Leeds, of Hoboken, and Dr. Hiesland, of Philadelphia, have investigated these changes and agree upon the following points: When the heat rises above 165° F. the galactozymase, or starch-liquefying ferment, is destroyed. It is present in cow's milk only in minute quantities. A portion of the lactalbumin is coagulated. The casein, after the action of prolonged heat, is less readily coagulated by rennet, and yields slowly and imperfectly to the action of pepsin and pancreatin. The fat is also affected by the heat, so that after the milk has stood for some time small lumps appear upon its surface. Milk sugar is completely destroyed by long-continued heating.

It would appear, therefore, that milk sterilized in the usual manner can not be so readily digested as plain milk, and that it possesses certain disadvantages. They are not, however, equal to the disadvantages and dangers of milk swarming with bacteria. There can be no question that under its use the number of lives saved is increased and the number of cases of diarrhœa is diminished. The questions at once arise, whether these disadvantages can be obviated, and whether this full sterilization is required. Experiments are described which seem to show that cow's milk rendered feebly alkaline and heated to a temperature of 155° F. is rendered practically sterile, though this is not in accord with the conclusions of certain other observers. The author proposes that when the Arnold sterilizer is used the process shall be continued for but twelve or fifteen minutes, cold water being placed in the basin at the start. The temperature does not rise above 160° F. during that time, and no deleterious changes take place in the milk, but all the sterilization necessary is effected. The process of sterilization accomplishes but one thing, the destruction of bacteria, and it may render the milk less digestible. Its use should, therefore, not be resorted to as a routine practice, but only when fresh milk can not be obtained.

MINOR PARAGRAPHS.

CAUTERIZATION IN THE TREATMENT OF CHRONIC DACRYOCYSTITIS.

M. Legrange, according to the *Revue générale de clinique et de thérapeutique*, deals with this very obstinate condition of the lacrymal sac by cauterization instead of catheterism, as is usually done. He says that the principle involved in the latter method is faulty, in that the passing of lacrymal probes into a sac and canal the mucous membrane of which is in a state of chronic inflammation increases the condition that we are attempting to cure—namely, the supersecretion, tumefaction, and adhesions of the canal and sac. His method is to cauterize the sac with the olive-shaped cautery of M. Panas. In cases where the disease of the mucous membrane is of such a character that the resumption of normal function is almost hopeless he does not hesitate to cauterize to such an extent that obliteration of the glands will be insured. In the majority of cases, after this treatment the reaction of the tissues has been prompt, the secretion modified, and the function of the parts frequently restored.

PILOCARPINE IN PUERPERAL ECLAMPSIA.

In the *Gazette hebdomadaire des sciences médicales* for September 12th, Dr. Strisover adds to the experience of observers in this field the results of his use of pilocarpine in the treatment of eclampsia. By the subcutaneous injection of hydrochloride of pilocarpine the author has been successful in controlling the convulsions and preventing their recurrence in ten cases. The treating successively of such a number of cases without one death has led the author to the conclusions that pilocarpine is an antagonist to the eclamptic process; that feebleness of the pulse is not a contra-indication to the repeated injection of the drug, so long as the convulsions reappear; and, finally, that the condition of the pupils is to be relied upon as an index to the further accession of the convulsions or to immunity by the physiological action of the drug.

THYMUS VULGARIS IN THE TREATMENT OF WHOOPING-COUGH.

Since Dr. Neovius published a monograph on the advantages of this drug in the treatment of epidemic whooping-cough, Dr. S. B. Johnson, according to the *Lyon médical*, has been giving it a trial, and his experience with it has led him to the conclusion that it is a specific in this disease. Dr. Johnson says that, if the medicament is administered regularly and with perseverance, the cure is invariable in from three to five days, but the use of the medicine must be persisted in for at least two weeks after the symptoms have subsided. The thymus is given mixed with a small quantity of marsh-mallow syrup. The only unpleasant effect likely to occur will be a slight looseness of the bowels. The preparation to be effective should always be made fresh.

THE TREATMENT OF GLAUCOMA.

As this disease is so fatal to vision, any remedy that may be suggested to diminish the frequency of its termination in blindness can not fail to be read of with interest. M. Nicati, in the *Revue générale de clinique et de thérapeutique*, has had marked success in the treatment of glaucoma by drainage of the posterior chamber, either by sclerotomy or by sclero-iritomy, as the conditions of the individual case may require.

DR. SAJOUS'S ANNUAL.

The five volumes of Dr. Charles E. Sajous's *Annual of the Universal Medical Sciences* for 1891 have recently appeared, and they fully maintain the title of the work to rank as the leading digest of current medical literature. Among the seventy associate editors are many whose distinction in their several specialties is everywhere recognized.

ITEMS, ETC.

The New Jersey State Board of Medical Examiners.—The secretary informs us that in the table in his report published in the *Journal* for the 31st ult. the percentages of numbers 20 and 21 should be reversed; as published, the name of the college opposite each number is correct, but the percentages of number 20 belong to number 21 and *vice versa*.

The Harlem Medical Association.—The programme for the meeting of Wednesday evening, the 4th inst., included a paper by Dr. E. L. Cocks, entitled Some Remarks on Lupus Vulgaris.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending October 31, 1891:*

Harvey, Henry P., Surgeon. Ordered to the Receiving-ship St. Louis.

Flint, James M., Surgeon. Detached from Smithsonian Institution and ordered to the U. S. Steamer Miantonomoh.

Heyl, T. C., Surgeon. Detached from the Receiving-ship St. Louis and to wait orders.

Society Meetings for the Coming Week:

Monday, *November 9th:* New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); Lenox Medical and Surgical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club (annual); Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

Tuesday, *November 10th:* Southern Surgical and Gynæcological Association (first day—Richmond); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Society of the County of Rensselaer, N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Camden, N. J., County Medical Society (semi annual—Camden); Norfolk, Mass., District Medical Society (Hyde Park); Baltimore Gynæcological and Obstetrical Society.

Wednesday, *November 11th:* Southern Surgical and Gynæcological Association (second day); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Society of the County of Albany, N. Y.; Pittsfield, Mass., Medical Association (private); Worcester, Mass., District Medical Society (Worcester); Philadelphia County Medical Society.

Thursday, *November 12th:* American Association for the Study and Cure of Inebriety (New York); Southern Surgical and Gynæcological Association (third day); New York Academy of Medicine (Section in Genito-urinary Surgery); New York Academy of Medicine (Section in Pædiatrics); Society of Medical Jurisprudence and State Medicine; New York Physicians' Mutual Aid Association (annual); Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private—annual); Pathological Society of Philadelphia.

Friday, *November 13th:* Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

Saturday, *November 14th:* Obstetrical Society of Boston (private).

Letters to the Editor.

ARSENITE OF COPPER.

Belvidere, N. J., *October 20, 1891.*

To the Editor of the New York Medical Journal:

Sir: In your issue of October 10th I see a letter from Dr. H. G. Norton, of Trenton, N. J., on the inefficacy of arsenite of copper in cases of diarrhœa. He ends up by saying that "two years' use of the preparation prove it to be none other than a chemical curiosity, possessing feeble properties in the doses recommended, if any at all."

My experience with the preparation has not been so long as Dr. Norton's, but in the past six months I have used it quite extensively and have met with very few failures, if any, in the use of it. In some cases, it is true, I have not seen so much of an effect from it as in others, but this, of course, is true in the use of any drug or preparation. In fact, I do not recall a single instance in which I did not get some effect from the use of the arsenite of copper in diarrhœal diseases.

My attention was first called to the preparation in the issue of the *New York Medical Journal* of August 16, 1890, in the letter of Dr. Branch Clark, who said that he had not lost a patient with cholera infantum since he began its use, and that he used it in cholera infantum, cholera morbus, and dysentery, with uniformly good results.

I will give you briefly some of my experience with the preparation. I would say, first, that in cases of cholera infantum and cholera morbus it very often relieved the vomiting before it relieved the diarrhœa.

The first case I tried it on was that of a bottle-fed child aged six months. It was taken with fœtid diarrhœa, the stools being of the "frog-pond" variety. I first gave fractional doses of calomel, followed by bismuth subnitrate and pepsin, without any relief, the diarrhœa continuing for two days. I then dissolved a tablet containing one one-hundredth of a grain of the arsenite of copper in four ounces of water and ordered a teaspoonful to be given every ten minutes for an hour, then every hour until the patient was relieved. I heard nothing of the child for two or three days, and, on inquiry, the parents said they feared the diarrhœa had been checked too suddenly, as the child had not had a passage after they began the last medicine until that morning. They had thought of giving it a dose of castor oil, the bowels having been checked so suddenly.

I gave it to another child, aged twenty-two months, that had been given homœopathic medicines for several days, without benefit, and was vomiting and purging about every half-hour or hour, when I was called. I gave it the same dose in the same way as in the other case. The child did not vomit any more, and the bowels moved only three times in fourteen hours after the first dose was taken; after that the bowels moved normally.

Another child, aged twenty-one months, had been treated for diarrhœa for about two weeks; the passages had numbered twenty-two in the twenty-four hours preceding the time I first saw it. I gave it the arsenite of copper in the same way, and the child was relieved without further trouble.

A few weeks ago, during one night and the next day, I treated ten severe cases of cholera morbus with the arsenite of copper. The youngest patient was a lad of ten, the oldest a man of about sixty-five years. The lad was vomiting and purging violently when I reached him; I tried at first to give him bismuth subnitrate, but it failed to relieve the nausea and vomiting, and he had to rise every few minutes on account of the purging. I then gave him the arsenite of copper in the above-mentioned dose, and his nausea and vomiting were relieved after the first dose; the bowels moved only twice after the first dose was taken.

Another patient, a man, aged about fifty, was vomiting and purging very violently; I gave him the arsenite of copper in the above-named dose, and his vomiting was relieved at once and the purging very quickly. This man had weighed himself the evening before, and found his weight to be two hundred and sixteen pounds; the next morning, after the attack of cholera morbus, he again weighed himself and found he had lost seven pounds and a half during the night.

In the other cases I gave the arsenite of copper in the same dose, alone, with uniformly good results. In all these cases I found the arsenite of copper would relieve the soreness of the bowels in a very few hours. I have tried the remedy in one case of chronic diarrhœa, where all the remedies I had given before failed to give relief. The man was very much emaciated, and since taking the copper arsenite has gained very much in flesh and strength. I gave him the one one-hundredth of a grain at a dose, repeated every three or four hours.

I certainly can bear testimony as to the value of the arsenite of copper in my hands in all cases of acute diarrhœal disease.

William J. Burd. M. D.

New York Infant Asylum,
Mount Vernon, N. Y., *October 27, 1891.*

To the Editor of the New York Medical Journal:

Sir: As communications to the Journal in regard to the treatment of diarrhœa with the arsenite of copper seem to be in order, I will briefly relate our experience in the New York Infant Asylum in the use of this drug. After carefully reading Dr. Aulde's articles on the treatment of diarrhœa with the arsenite, we determined to give it a trial. During May and June of 1889 ten cases of acute dyspeptic diarrhœa were treated in the following manner: At the outset of the attack one teaspoonful of castor oil was given; in two hours $\frac{1}{3000}$ of a grain of the arsenite was given in one drachm of water, previously boiled; this was repeated every ten minutes for the first hour; then this amount ($\frac{1}{3000}$ of a grain) was given hourly. The patients were kept as quiet as possible during the treatment, and carefully dieted. They all made excellent recoveries, as did also a like number of patients with similar attacks which occurred at the same time, who received only the oil, rest, and diet. The employment of the arsenite was continued on into July and August. It was used as above described in acute gastro-enteritis, entero-colitis, and colitis. Forty cases were treated during the hot months of 1889 and 1890. The ages of the patients ranged between two and eighteen months. These had diarrhœa and were *sick*, having high temperature, urgent thirst, and rapid emaciation. In the majority the arsenite was given early in the attack and continued four or five days. In others it was given later in the disease, after other drugs had been found unavailing. The patients were all cared for by a careful nurse night and day. A fair and impartial trial was given, and in not one case was the drug of the slightest service. The majority recovered under change of treatment; others died under the arsenite, and a few died after other measures had been employed. During the past summer it was again used in five or six cases, but proved to be as useless as before. As will be seen by the foregoing, this method was most unsatisfactory, and we have discontinued the use of the drug. The Fraser tablets were used; these dissolve readily.

Charles G. Kerley, M. D.

Jeanesville, Pa., *November 2, 1891.*

To the Editor of the New York Medical Journal:

Sir: I have noticed in your Journal several letters expressing somewhat different opinions of the value of the arsenite of copper in diarrhœa and dysentery. While this difference of opinion in regard to new remedies may be due in some instances to a poor preparation of the drug used, or to improper administration, I believe it is more often due to a failure to distinguish between the *propter hoc* and the *post hoc*. We are too much inclined, if a thorough believer in drugs, to ignore the self-limitation of many diseases and to conclude that because a cure follows the use of a certain remedy the remedy wrought the cure.

I have used the arsenite of copper during the past summer in about a hundred cases of acute diarrhœa and dysentery, and have made a record of about one half that number of cases. The cases embraced the various types of summer diarrhœa, cholera infantum, and acute dysentery. In nearly all a cathartic was first administered, and the arsenite of copper (Parke, Davis, & Co.'s or Fraser's tablet triturate) given in $\frac{1}{3000}$-of-a-grain doses every ten or fifteen minutes for eight doses and afterward every hour or two. If no improvement was noticed in twenty-four or forty-eight hours, the use of the arsenite was discontinued or continued with other medication. Not the slightest benefit was obtained from the arsenite in any case of acute dysentery or cholera infantum; in several of the latter which terminated fatally I have cause to regret wasting precious time with it.

The only cases in which the arsenite of copper was apparently curative were cases of diarrhœa of twenty-four hours' or less duration, and in these cases I firmly believe the cathartic and regulation of the diet always enforced and the natural tendency of the cases to recovery were the curative agents rather than the arsenite of copper. One failure in a well-selected case proves more to me than several cures in such cases as those just mentioned.

As a placebo after the proper treatment has been given (if any is needed), and where something must be given to satisfy both patient and friends, the arsenite of copper is admirable, being convenient, pleasant, and perhaps harmless in the doses given. For such cases I shall continue to use it, but as a remedy of any value in acute diarrhœa and dysentery, my experience, though limited, is entirely against it.

E. B. Doolittle, M. D.

THE SPEECH CENTER.

Norwich, England, *October 15, 1891.*

To the Editor of the New York Medical Journal:

Sir: One of our leading British psychologists has just called my attention to a paragraph in your issue of March 14th, in which you do me the honor to summarize my views about the speech center. as contained in the new edition of my work upon Aphasia and the Localization of Speech.

As your remarks do not correctly describe my ideas, and as the subject is one of great importance and scientific interest, I venture to ask you to allow me to point out where you have misinterpreted my views. You quote me as practically ignoring all the theories of localization of the faculty of speech. If you will refer to page 350 of my book you will see that I do not discard those theories in the summary manner described in your article, for, after stating that the question must still be considered as *sub judice*, I venture to formulate the following conclusions:

1. That, although something may be said in favor of each of the popular theories of the localization of speech, still so many exceptions to each of them have been recorded that they will none of them bear the test of a disinterested and impartial scrutiny.

2. That it must be conceded that in the immense majority of cases aphasia has been found associated with disease in the left anterior lobe, and more especially in the third left frontal convolution or its immediate neighborhood. After alluding to the views of Prof. Grassett, of Montpellier, who says that the seat of language (if there is any) is not "a mathematical point," and after quoting the remarks of Mr. Victor Horsley at the Washington Medical Congress, to the effect that "there is no *hard and fast line* limiting the representation of any given segment," I summarize my remarks by stating that the Scotch verdict of not proven may fairly be claimed in reference to any arbitrary and definite localization of the faculty of speech; and that the most there can be conceded is that the healthy action of a limited portion of the left hemisphere seems to be necessary for the *outward* manifestation of articulate language; but this

fact does not justify crediting this area with being the *seat of speech*, an expression which seems to me to be misleading and inappropriate.

The American contributions to this subject (to which I have given a prominent place in my volume) are so important that I am desirous that my matured views upon this vexed question should not be misinterpreted by the American profession, which has done so much toward the solution of one of the most complex questions of neuro-pathology.

FREDERIC BATEMAN, M. D.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Meeting of October 1, 1891.

The President, Dr. ALFRED L. LOOMIS, in the Chair.

The Enlarged Prostate and its Operative Relief.—Dr. E. L. KEYES read a paper on this subject. He said that to-day prostatotomy and prostatectomy were accomplished surgical facts and splendid additions to our resources in that class of grave vesical disorders found so often in the best ranks of the community late in life, in those who used their brains rather than their muscles and led sedentary lives. Yet the indications for these operations were not yet fixed. The questions on which the author asked for discussion were: (1) When was perineal prostatectomy to be preferred to the suprapubic operation? (2) What condition of prostate or vesical disease, or both, justified a radical operation, and should it be done early or late? (3) How much of the prostate should be taken away?

Prostatotomy as an adjuvant to vesical drainage had been so generally recognized as a proper concomitant of the latter operation that its consideration need not be dwelt upon, nor that new form of operation, lateral prostatectomy, performed by dissecting off the rectum from the prostate and peripherally slicing away its lateral lobes without opening either the urethra or the bladder. This operation had been suggested theoretically after cadaveric research by Dittle last year, but, aside from its manifest inability to cope with the median prostatic overgrowth, it had been tried and found wanting this year by Küster. The author then gave a detailed history of his cases, eleven in number—three perineal and eight suprapubic. The results in the suprapubic cases had been two deaths—one in a very promising case, the other in a very grave one. After the second case all the remaining patients had taken diuretin freely and salol, and in none had there been any urinary fever, suppression, or pyelitis. Antiseptic irrigations and the usual precautions had been always followed. In age the patients had averaged sixty-four. The cases had not been selected, except that all mild ones had been refused operation and no desperate case had been denied the chance, and out of these several of the patients had been so nearly dead when taken in hand that the operation had seemed more like the short horn of a dilemma than an operation of choice or expediency. Suprapubic prostatectomy in cases of this nature was of the first order in magnitude and gravity. In the author's opinion, it far outranked nephrotomy, or even nephrectomy, in gravity. Even in the milder or seemingly milder cases it was a grave resource, as every second operation demonstrated, and he thought it was not proper to attack cases early, when the symptoms were not severe, with an operation the best statistics of which yielded a mortality of thirteen and six tenths per cent., and where the well-known chances of life with the use of the catheter were so high. As to the power of restoring contractility to an atonied organ, the author's statistics lacked value on account of the recent date of several of his operations. In his eight suprapubic cases two patients had died; in three of the others, although all were up and about, the wound was not quite healed. Of the remaining three, in Case I the operation was insufficient and the atony remained, although urination was natural and voluntary up to that point. Case II: The patient had had eight ounces of residuum and now emptied his bladder completely. Case III: This patient had also entirely dispensed with the catheter and was functionally well. Whether the others would lose their atony and empty their bladders entirely without the catheter the author could not say at this time. Of the three perineal cases, two patients had emptied their bladders entirely after the operation.

An important lesson taught by the author's cases was the variety in texture of the enlarged prostate. In some instances he had found it so tough as to make it impossible of removal by the use of the curved scissors and then digging out with the fingers. This had suggested the employment of the rongeur for this purpose, and he wished to emphasize the fact that he had found it invaluable. He then went minutely into the details of the operation as done by himself. He preferred the vertical to the transverse incision always, and in this operation, which resulted in so much hæmorrhage, he thought open dressings should be used. His method was to use one or two buried sutures of catgut to attach the recti muscles, the yellow fat below the peritonæum, and the bladder wall above its incision into one firmly knotted mass, then to carry one end of the silk loop on each side which had been supporting the bladder during the operation through the rectus muscle on either side, and again to knot it, and then tie the two loops together under considerable tension with a string passed across the sacrum. This would hold the loops between the pelvic crest and the great trochanter on either side. This loop went in over the skin through the rectus, through the bladder, thence up over the skin on either side. The tension of the two kept the wound constantly open. Continued irrigation could then be maintained.

The author's conclusions were:

1. Prostatectomy is justifiable and does what nothing else can.

2. The perineal operation is less severe, but also decidedly less reliable, than the suprapubic; it should rarely be preferred unless there are urethral complications. In very feeble old men it may still be the operation of election.

3. The operation is not justifiable with the present statistics if the patient can be comfortable in catheter life.

4. No physical condition of the parts or of the patient short of a practically moribund state contra-indicates an operation. By it in desperate cases life is often actually saved, although the operation is a grave one and its mortality high.

5. With the rongeur, better than with any other instrument, the bladder outlet can be lowered and polypoid or interstitial growths jutting into the prostatic sinus can be removed, and these points are more essential to a successful issue than the taking away of a large portion of the prostate bulk. The instrument next in value is the curved scissors; but the trained finger is the most important of all.

6. Diuretin is perhaps of value when the kidneys are deranged. It certainly does no harm.

7. Chloroform alone should be used as an anæsthetic.

Dr. S. ALEXANDER thought that for simple drainage of the bladder without removal of the prostate the incision through the perinæum was to be preferred. He had been surprised to find how dense the prostatic tissue was and how difficult it was to make any impression upon it by ordinary means, and he believed the rongeur would be an extremely useful instrument.

Dr. L. B. Bangs said that the profession should be grateful for any sound contribution to prostatic surgery. The author, in his paper, had carried them a step farther in the right direction. It was true that the death-rate was a very high one, but still some effort must be made to render these unfortunate patients more comfortable. It would probably be expedient to attack many of these cases earlier in their prostatic history. In conditions of difficult or impossible catheterism, with a lessening interval of time between the calls to urination, or the existence of hæmorrhage or stone, operative interference was, in the speaker's opinion, indicated. In cases in which the patient was *in extremis*, or in which rapid drainage was to be established, the suprapubic route should be adopted. The outlet could be lowered without resort to the perinæum.

Dr. J. A. Wyeth said that he should agree with the writer of the paper in regard to a great deal that he had said, both as to technique and as to the class of patients to be operated upon, but he had had no experience with the perineal route, having done all his operations by the suprapubic method. He had found the vertical incision all that was necessary, and had very rarely made the cross incision. He made a cut three inches long, two inches above and one inch below the pubic bone. When he desired to expose the bladder, he snipped the muscles on either side of the central incision. He agreed as to the uselessness of perineal drainage. In the twenty-four patients operated upon by himself he had used siphon drainage, and had found it perfectly satisfactory; the flow could be regulated, and complete closure was always obtainable.

In removing these knotty prostates he had made use of a modification of an instrument devised by Sir Spencer Wells, or of a Volkmann sharp spoon, but thought that the rongeur would be admirably adapted to the purpose. He would like to emphasize the advisability of some preparatory treatment of the patient. He was in the habit of giving oil of gaultheria in five-minim doses for several days previous to the date of operation, and believed it was effective in rendering the bladder contents aseptic. He must, however, disagree on the matter of the anæsthetic. He thought that if ether was given scientifically, it might be quite safely used in these cases, though, of course, there were instances in which the clinical indications called for chloroform. Until a year ago he had really not understood how to give ether, but the Ormsby inhaler, which had now come into use, made the exhibition of ether an almost scientifically accurate procedure; with it the minimum of ether could be given with the production of the maximum of anæsthesia. He thought that the suprapubic method of operating was not so dangerous as Dr. Keyes had considered it, but that it was particularly so in old patients with enlarged prostates, whose general health was already broken down. In cases where it was necessary to maintain permanent drainage, he had employed and could recommend the use of the suprapubic drain as modified by Dr. Bangs.

SECTION IN GENERAL SURGERY.

Meeting of October 12, 1891.

Dr. Robert Abbe in the Chair.

The Open Method in Operations for Talipes.—Some half dozen patients were presented before the Section upon whom had been performed the operation advocated and successfully followed by Dr. A. M. Phelps for the cure of club-foot.

Dr. Willy Meyer showed a young man who had come to him with pronounced congenital talipes equino-varus in one foot. He had operated upon this patient in the presence of Dr. Phelps. When the soft parts were divided there was no difficulty in correcting the deformity. The foot was put in position of overcorrection and immobilized in plaster. This splint was kept on for six weeks. On its removal, healing was nearly complete. There had been no septic symptoms, no fever, and no extreme pain. It would be seen that the result was in every particular excellent.

Dr. Phelps then exhibited a number of patients upon whom he had performed this operation, and the results, as compared with the photographed deformities prior to operation, calling forth expressions of commendation on the part of the meeting.

One of the cases was that of a girl, four years of age, who had been treated and operated upon in various ways by specialists and in whom the congenital deformity of varus had been changed to that of valgum during the application of a brace. The speaker had operated upon the foot by the open method and had succeeded in making complete correction of seemingly hopeless deformity. Two months subsequently he had done an osteotomy of the femur at the knee and had straightened the leg. After the operation on the foot all the tissues had united primarily; function was almost perfect, and there was no tenderness in the scar. Dr. Phelps, after giving briefly the steps of the operation, made a strenuous argument in favor of making this method that of election in all cases where operative work was to be done at all. The results, it had been demonstrated, were as nearly perfect as surgery could hope to get; the operation was without the mortality risk which statistics proved to be associated with osteotomies and bone exsections for the cure of this deformity. He would place the operative work for talipes in the following order: (1) Manipulative, (2) subcutaneous tenotomy, (3) the open incision, (4) linear osteotomy (through the neck of the astragalus), (5) V-shaped osteotomy from the os calcis, (6) removal of the cuboid and scaphoid, (7) Pirogoff's operation.

Dr. V. P. Gibney expressed his admiration of the results which had been secured by the method under consideration. He believed the operation as done now by Dr. Phelps to be a most satisfactory one. Still he was surprised to hear that gentleman speak so strongly against the removal of the astragalus. If the same care was given to the after-treatment, he thought that removal of the astragalus would give as good results as treatment by the open method. It was not a fact that the astragalus was essential to the proper function of the foot, as was maintained by some, and examination of the local anatomical relations in these congenital cases would often show that the astragalus did not act as a bony wedge at all, but that it was subluxated forward. Dr. Vance, at the recent Washington congress, had strongly advocated manual correction of the deformity under anæsthesia, the foot being then overcorrected and placed in plaster of Paris, and this manœuvre repeated at intervals until complete disappearance of the deformity occurred. However, the open operation was undoubtedly a good one, though he did not do it as much as Dr. Phelps. In obstinate cases he preferred removal of the astragalus and overcorrection until the foot was brought round in good shape.

Dr. L. A. Sayre preferred to cut the tissue in the sole of the foot before dividing the tendo Achillis in this operation, believing he could correct the deformity more readily while he had the os calcis in position. As to the question of relapses, if these patients were not able, as a result of the work done, to bring their feet well to the ground in good position, they were simply not cured and the former conditions would recur.

The Chairman said he approved of the open method, and it certainly was able to bring about some very beautiful results. His first impression had been that following such extensive cutting of tissue, as was often necessary, there must be great impairment of function. He was much surprised, therefore, to find that this was not the case. Above all, the operation gave an excellent walking foot, which was the aim and object of its performance.

Gastrostomy for Cancerous Stricture of the Œsophagus.—Dr. Willy Meyer showed a male patient, seventy-one years of age, upon whom he had recently performed this operation, after the method of von Haecker, in which the incision was made through the linea alba, and the recti muscles combined to act as a sphincter in retaining the stomach contents and feeding-tube. The method was rapidly gaining the favor of surgeons. The stomach in this case was opened forty-eight hours after stitching it to the walls of the primary incision. Everything had closed down upon the tube in healing, and there had been no leakage until four weeks ago, when the juices of the stomach had digested the walls of the fistula slightly. The patient, being a poor man, could not afford the more elaborate mechanical devices which had been advocated as preventing leakage. The speaker had therefore directed him to take his tube out at night, eight hours after the last meal. Since this had been done there had been no more leakage. The patient was in first-rate condition, and there were no evidences of recurrence of the disease as yet.

Dermatol instead of Iodoform.—Dr. C. A. Powers showed a new preparation of this name, which he had brought from Europe, and which was coming into use as a substitute for iodoform. He described it as being a subgallate of bismuth. The new drug was without odor, non-irritant, and non-poisonous, and, as a dry dressing, was said to possess remarkable healing properties.

The Chairman, who had also used this new preparation, corroborated Dr. Powers's remarks as to its value so far as it had yet been tested.

Acute Intussusception.—Dr. F. B. Curtis reported a case of laparotomy recently done by himself upon a patient in whom, while the symptoms pointed to acute intestinal trouble, there had been such delay on the part of the medical adviser in seeking surgical aid as to render it of no avail when obtained. A condition of intussusception was found which was effectually dealt with, a subsequent movement of the patient's bowels demonstrating restoration of the integrity of the intestinal canal. The delay, however, had caused such damage to the parts involved that a fatal result ensued. The speaker thought that the medical side of the profession was too slow in accepting the fact that symptoms of obstruction or perforative peritonitis demanded prompt reference to surgery for possible relief.

The Biceps Cruris in Diseases of the Knee Joint.—Dr. Eliza M. Mosher, of Brooklyn, read a paper presenting the results of an original investigation of the anatomical relations of the biceps cruris muscle, with reference to the *rôle* it played in the production and continuance of diseases in and around the knee joint.

In order to introduce the subject, she briefly reviewed the anatomy of the seven muscles which with the biceps produce flexion and rotation of the leg, and showed their mechanical relations to be such as prevented them from making forcible traction upon joint tissues even during violent action. She recalled to the minds of her hearers the difference in shape, pliability, and mobility of the interarticular fibrocartilages, showing that the external one, owing to its extensive capsular attachment and to the shape of the articular surfaces to which it was applied, was capable of making wider excursions than its fellow. It had a larger extent of synovial surface, and its intimate relation to the posterior crucial ligament (which was tense during flexion) was an element calculated to increase its susceptibility to injury by a sudden and undue tractile force exerted upon it.

In presenting the anatomy of the biceps muscle we were at once confronted by the fact that this muscle on the outer side of the thigh performed alone the work shared by several muscles on the inner side, which indicated a complex arrangement of muscular fiber, and a functional activity in excess of its fellows. It took origin at the pelvis in close connection with the semitendinosus; its fibers passed downward and outward. Some of them became tendinous in the upper third of the thigh, forming the beginning of the ribbon-like fibrous band which traversed the remainder of the muscle, becoming, below, its tendon of attachment to the fibula. All of the pelvic fibers joined this tendon at some point above the outer condyle of the femur The name long head was commonly applied to this upper portion of the muscle. The short or femoral head arose from the linea aspera, the external supracondyloid ridge, and the external intermuscular sæptum. Its line of origin extended from the middle of the femur, sometimes higher, to a point four or five centimetres above the outer condyle. The fibers which took origin from the linea aspera passed downward and ended in the aponeurotic band described in connection with the long head. They increased the leverage power of the muscle materially. The fibers from the supracondyloid ridge and intermuscular sæptum passed in the same direction, but did not end in the aponeurotic band; they joined it, passed down along its anterior border, and spread out on its femoral surface three or four centimetres above the head of the fibula. A group of them then separated, became fibrous, and were applied to the capsular ligament at its junction with the ligament of Winslow, behind the tendon of the popliteus. These acted the part of a tractor of the capsule and interarticular cartilage. The remaining fibers from the supracondyloid ridge became tendinous opposite the head of the fibula, and divided in two slips—a superficial and a deep—between which the long external lateral ligament passed to its insertion into the head of the fibula. The superficial slip was closely connected with the fibular tendon of the biceps; it crossed the tibia to a small but strong insertion near the outer border of the ligamentum patellæ. The deep portion of the tibial tendon, much larger than the superficial, crossed the tibia beneath the lateral ligament. In passing to its insertion it not only played over the surface of the capsule above the head of the fibula, but blended with it along its line of attachment; some fibers even passed upward upon it as far as the insertion of the coronary ligament. This intimate relation between the biceps muscle, the capsular ligament, and, through it, the interarticular cartilage and synovial membrane, had not, so far as the speaker knew, been heretofore described.

The biceps muscle acted as a flexor of the leg, an external rotator, and a tractor of the capsular ligament and interarticular cartilage. With such a leverage upon the tissues in and around the knee joint, it was not difficult to believe that sudden and forced action of the biceps muscle, as in a stumble upstairs, over the curbstones, or downward, might produce serious injury within the joint, or to the periosteum along the line of attachment of the capsular ligament or at its own point of attachment to the tibia. Disease of the joint or periosteum once established, how could it be otherwise than that action of the supracondyloid portion of the biceps should tend to perpetuate it?

All who were familiar with knee-joint affections knew that long-continued disuse meant long-delayed recovery. Any measure, therefore, which made it possible to exercise the joint, either actively or passively, without injury, meant a shortening of the time during which its unfortunate possessor must remain physically inactive.

In view of the fact that serious injuries to the knee joint most often occurred during the movement of flexion of the leg, also that the internal flexors, by virtue of their low insertion, made no special traction on the joint, it was reasonable to conclude that the action of the biceps cruris was, in some cases, the exciting cause of inflammation in and around the knee, and in a large number of joint diseases its movement was a grave source of irritation.

The practical question now arose, Could a tenotomy or myotomy be performed to relieve this tension without disturbing the integrity of the joint?

Referring again to the fact that the supracondyloid portion of the muscle was the only one which made traction upon the capsule and the tibia, and that these fibers ran in front of and along the femoral surface of the fibular tendon near its attachment, the author suggested the simple operation of incising *all* the muscular fibers found in connection with the tendon at a point four centimetres above the upper surface of the head of the fibula, also of excising a small V-shaped piece from the anterior border of the tendon itself at this point. Such a myotomy would remove tension from the capsule and cartilage and from the periosteum on the front of the tibia. On flexion, she suggested also the possibility of its lessening friction in the joint by diminishing the external rotary force of the biceps in walking.

Dr. Mosher then read the history of a case of subacute periostitis located upon the outer anterior surface of the head of the tibia. The patient was obliged to use crutches much of the time for seven years. Movement of the leg aggravated the pain, and relapses frequently resulted from missteps, which produced sudden and forced flexion. Having demonstrated that the tibial tendon of the biceps was attached as stated, and believing that the action of the muscle might keep up sufficient friction to perpetuate the disease, the author had suggested that the tendon should be incised in front of the long external lateral ligament. The operation resulted in the recovery of the knee. It was now three years since it was done, and the patient had not had a relapse. There was atrophy of the *supracondyloid portion of the biceps*, and external rotation was diminished in walking.

AMERICAN SURGICAL ASSOCIATION.

Twelfth Annual Meeting, held in Washington, on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

The President, Dr. C. H. Mastin, of Mobile, in the Chair.

(Concluded from page 385.)

Recurrence of Carcinoma of the Breast.—This was the title of a paper by Dr. F. S. Dennis, of New York. He said that anything he might bring forward in connection with his subject must be understood as having relation only to such cases as had been subjected to thorough microscopical examinations of the tumor. All other cases would be excluded as worthless in argument, compilers of statistics having included instances of benign as well as malignant tumors of the breast, grouping them under the general class of carcinoma. For these reasons, also, it would be seen that accuracy in deductions as to recurrence of carcinoma in the breast was necessarily vitiated. He would, however, utilize those about which authoritative statement could be made.

The length of time that a patient might enjoy immunity from the disease after removal of the breast was a problem of overwhelming interest to the sufferer and to the surgeon. The prevalence of this form of tumor was appalling. In this country it was steadily on the increase. In 1880 there had been 1,387 deaths from carcinoma of the breast in the United States. These figures impressed the necessity of investigating the causes of death from recurrence after operation. Another reason for opening such inquiry was the antagonistic views held by surgeons upon the question of curability.

Some held that recurrence was inevitable; others believed in the possibility, under certain conditions, of permanent cure after operation. The speaker had carefully collected the statistics supplied by different observers, and the cases of recurrence had amounted to seventy-five per cent. of those operated upon. He had not included his own cases in this list. These figures included cases where incomplete operations had been performed—that was to say, where the axilla had not been laid open and the chain of lymphatics removed, whether diseased or not.

If, however, the cases in which complete operation had been performed, and in which the date of such operation was but recent, were taken, then the percentage of recurrences would be much less but the mortality rate higher. The fact that one fourth of the cases operated upon had ended in permanent recovery pointed logically to the conclusion that in the other three fourths there had been some defect of operative technique, or an unreasonable delay in arriving at a diagnosis, or a great diversity in the histological formation of the carcinomata.

Careful study of the cases of recurrence of carcinoma of the breast following excision of the gland had demonstrated that there was nothing different in the recurrence of breast carcinoma from what was found in the disease affecting other organs or parts. With our present knowledge, all that could be said was that carcinoma developed in certain individuals who must have peculiar capabilities for the conception of the disease, and that the disease originated from some cause which excited cell growth. In the primary growth, at its inception, the neoplasm was of local origin. Early and complete removal of it relieved the local disease, but the operation did not remove the predisposition or susceptibility or the capability for recurrence. It was possible that the capability was limited to a certain extent, but to what extent no one could judge from a study of the life history of the growth.

Recurrence of carcinoma of the breast was influenced—

(*a*) By the period of time from the appearance of the growth to the date of the operation. In a study of his own cases bearing upon this point he had found that the tumors had been removed on an average of six months from the date of their first recognition in the breast. It was also an interesting clinical fact that in nearly all the cases of permanent cure the axillary glands had not been invaded, or at least there had been no microscopical proof of an invasion.

(*b*) By the extent to which infiltration had taken place by one or all of the three well-recognized ways of dissemination.

(*c*) By the radical character of the operation. But it must be remembered that a radical operation in one case might be unjustifiable in another. Still there was a standard operation which would not be too severe to meet the necessary indications in every case. The uniform classical operation should include the entire breast gland, all the fatty, areolar connective tissue in the vicinity, the integument over the circumscribed area of the tumor and as much more as was necessary, leaving out of consideration the question of flaps to cover the wound, and finally the pectoral fascia.

(*d*) By the histological character of the carcinoma. This was most important in regard to the question of recurrence.

(*e*) By the appearance simultaneously of carcinoma in both breasts. In such event secondary deposits were most likely to occur. These infiltrations and metastases were found very early in the history of these cases.

(*f*) By the personal factors of the individual, such as age, sex, marriage, fecundity, sterility, traumatism, heredity, menstruation, metastasis, mental condition, locality, race, nativity, and so on.

Of his own operative work in this field, covering a period of ten years' observation, he would now speak in respect to recurrence. From his list of one hundred and five cases, which had been under his charge, thirty-four must be eliminated for various reasons affecting their integrity for statistical purposes. This would leave seventy-one cases of amputation of the breast. Among these there had not been one death from the operation, neither had there been an instance of pyæmia, septicæmia, erysipelas, or abscess. The mortality rate had then been reduced from as high as twenty-three per cent. to zero. In the list of seventy-one cases of amputation of the breast a certain number must be eliminated in estimating the percentage of permanent cures. This was necessary because some of the tumors were of other varieties of malignant disease, and while this would not affect the question of mortality in reference to the operation of amputation of the breast, it would affect materially the question of cures beyond three years in pure carcinoma.

In the thirty-three cases of pure carcinoma of the breast in which the clinical histories and the microscopical examinations were complete, there had been eight permanent cures of over three years' limit of time. Deducting two cases, in which the histories had been unknown, the result had been over twenty-five per cent. of permanent cures beyond the three years' limit of time. It was fair to assume that there would soon be still more out of the list to include among the permanent cures.

The author felt justified in prophesying that with early and radical operations the recurrences of carcinoma of the breast after removal would be, comparatively speaking, of rare occurrence and that amputation of the gland for this disease would yet yield results more brilliant and startling than the most sanguine surgeon could imagine.

The Nitric-Acid Method for detecting Carcinomatous Tissue.—In the course of the preceding paper its author, Dr. Dennis, gave the details of a recently devised method suggested by Harold J. Stiles, M. B., F. R. C. S. E., Assistant to the Professor of Surgery in the University of Edinburgh. The steps of the process had been specially communicated to the author of the paper on carcinoma by Professor Cheyne, of Edinburgh, for embodiment in the paper and presentation to the Association of American Surgeons in congress at Washington. The process is given here from the manuscripts of Mr. Stiles:

1. Wash the mamma in water to remove all traces of blood. This is important, because after treatment with nitric acid the blood becomes blackened and difficult to remove, and therefore greatly obscures the appearances which the method brings out.

2. Submerge the whole organ in a five-per-cent. aqueous solution of *acidum nitricum* (B. P.) for about ten minutes—that is to say, during the time the surgeon is clearing out the axilla.

3. Wash in plenty of running water for five minutes.

4. Place in methylated spirit (undiluted) for two or three minutes.

5. Examine the whole surface very carefully to ascertain (*a*) whether any part of the tumor is exposed upon the surface, or (*b*) whether any locally disseminated cancer foci are exposed upon the cut surface, or (*c*) whether breast tissue is exposed.

The effect of the above-given method is to render all carcinomatous tissue and parenchyma dull and opaque white, due to coagulation of the albumin of the protoplasm of the cancer and epithelial cells. The fibrous tissue of the stroma is rendered gelatinous, translucent, and homogeneous in appearance and somewhat India-rubber-like in consistence. The fat is unaltered.

After examining the surface of the organ it should be cut into thick slices, and these are to be treated in the same way. Thus the various normal and pathological constituents of the mamma can be readily and most satisfactorily studied. Cancer and parenchyma can at once be detected if present upon the surgeon's cut surface, and, since the examination can easily be completed before the time for suturing the wound, we have in this method a means which affords the surgeon a valuable aid in ascertaining the limits of the disease and of the organ.

In two cases recently operated on by Professor Cheyne the writer was able to point out to him a speck of cancer no larger than a pin's head exposed upon the cut surface of the mamma. A corresponding point of the wound was searched, and in each case the remainder of the disease was discovered and removed.

The writer possesses microscopic preparations proving the cancerous nature of the portions so discovered. It is necessary to point out, however, that even although no locally disseminated foci may be discovered upon the surgeon's cut surface, the prognosis is not necessarily good, because, as we have already seen, the presence of lymphatics containing cancer cells can not be detected with the naked eye.

In a microscopic investigation of tumors of the breast we have in the nitric-acid method a means which enables us to select exactly those portions which are most likely to illustrate special points, and in this way much time and labor is saved. Those slices from which pieces are to be selected for microscopical examination must not be allowed to remain in the acid solution for more than a few minutes, as the acid renders the tissue too hard for section cutting.

Professor T. Bryant, of England, in the course of the argument which followed the paper on carcinoma of the breast by Dr. Dennis, said that we must look upon that author's effort as a complete exposition of the whole subject. When dealing with the treatment of carcinoma of the atrophic character and comparing it with results of treatment of a more active type, it must be felt that we were considering two diseases whose histories did not differ in origin but in character. Clinically we must separate the two growths—the slowly growing scirrhous form and the more rapidly growing tuberous form. He agreed entirely with Dr. Dennis as to the local origin of the cancerous tissues. There might be a predisposition for the development, but of what this consisted, whether hereditary or acquired, mattered little. It wanted no argument to prove that the successful treatment of cancer of the breast depended much upon the stage of the disease at which it was undertaken. Advanced carcinoma never could be treated with the same chance of a good result as when such treatment was begun at an early period. Then came the question of diagnosis. He wished that surgeons could always see these cases in their incipiency. A little induration in the breast was passed by and the family doctor was not consulted; then the operator nearly always had to deal with an advanced case. When the disease occurred during the active period of mammary life the physician might be excused for assuming that the condition was one of local mastitis, but after functional activity had ceased it was safer to consider any trouble as cancer, and then it was only in the early stage that there was hope of doing good.

It was the speaker's custom, when a case of induration presented, to tell the patient that any incision would certainly cure the condition if it was not cancer, and that if it were such, operation was the one imperative procedure. He had treated upward of thirty cases of this kind, and in every one of these he had found the disease to be of a cancerous nature. In all the cases he had removed the breast, and in many he had extirpated the axillary glands. At present he had not had one case of recurrence.

Interference with the slowly developing atrophic form of cancer simply seemed to light up the disease, and therefore he was of opinion that it was perhaps better not to touch these true stony cancers in the aged.

In the rapidly developing lymphatic cancer, of a brawny character, with infiltration of the lymphatics, it was no good to operate.

Dr. L. S. Pilcher, of Brooklyn, thought that the term "recurrent" was a misnomer. After the malignant character was once demonstrated, anything that operation might do was merely an arrest of the processes and progress of the disease, and the term most applicable to carcinoma of the breast was "continuous."

Dr. L. M. Tiffany, of Baltimore, objected to the three years' limit as indicating a cure after operation. He did believe in the local origin of the disease, and thought that we should come to understand it as we did tuberculosis. A so-called early recognition of the growth by the patient or by anybody else was in fact of little value, because, as a rule, it had been going on insidiously for some time, and often the first attention was called to it after the glands of the axilla were involved. Operation undertaken promptly then was by no means an early interference.

The Treatment of Fractures of the Humerus involving the Elbow Joint.—Dr. Lewis A. Stimson, of New York city, read a paper with this title. The special interest which belonged to the subject arose from the frequency with which fractures of the lower end of the humerus were followed by more or less diminution of the function of the elbow joint, and by deformity of the region or of the limb. As to causes of limitation of motion, permanent stiffness of the elbow after simple fracture was commonly due to a change in the shape of the articular surfaces, or in their relations to one another, destroying the coincidence of the axis or curvature with that of motion, and thus limiting the range of motion. It might also be due to an overgrowth of bone upon the surface of the humerus that arrested the movement of the olecranon or coronoid process into its corresponding fossa, or to more or less extensive ossification of the ligaments and capsule. As in flexion and extension the normal range of motion at the elbow was great, and since over a large surface the bones composing the joint were in close contact with each other, it followed that a comparatively slight change in shape or deviation of an axis might have a marked effect, and one that would be only partly relieved by gradual yielding of the ligaments, or by absorption of opposing bone under persistent stretching and pressure. Overgrowth of bone was much more common in the young than in adults, but so, too, were fractures of the lower end of the humerus, and in this overgrowth we found a cause of limitation of motion that, even if sometimes overestimated because unreduced displacements were mistaken for it, was yet sufficiently frequent to merit serious consideration. This overgrowth was in part exuberant callus and in part new bone formed beneath the periosteum adjoining the line of fracture.

Exuberant callus was usually formed when the displacement had been great and had not been well reduced. As to the relative frequency of the different forms of fracture of the lower end of the humerus and the character of the results, the author had collated statistics for the last six years. In a number of cases some uncertainty arose as to the correctness of the diagnosis, but in general it was found that fractures of the internal and external condyles, taken together, constituted nearly three fourths of all cases, supracondylar and intercondyloid, or T-fractures, the remaining fourth. Fractures of the internal and external condyles, when compared with each other, were of about equal frequency, although they differed so greatly in different years and under different assistants that error in diagnosis seemed probable. The supracondylar and intercondyloid were of nearly equal frequency, the former being rather the more frequent. The record of ultimate results was too incomplete to be of much service, as it ceased in most cases with a statement of the condition at the time or shortly after the removal of the splints. In the intercondyloid fractures, flexion was then possible to or slightly within a right angle; of the others, in fully one half no mention of the range of motion was made, while in those in which such mention was made it was usually described as excellent, perfect, or good, and only rarely as poor. As limitation of motion might be caused by a bony outgrowth from the humerus, itself the result of a persistent displacement of a fragment or the separation of the periosteum, the most efficient way to prevent it lay in an exact diagnosis and reduction of the displacement and in avoidance of any subsequent irritation of the periosteum. A third cause of limitation was found in thickening of the capsule and peri-articular tissues by the products of inflammation.

The cause might obtain temporarily during and for a limited time subsequent to the period of repair, or act permanently by the production of new fibrous and cicatricial tissue, which formed abnormal bands connecting the different members of the joint and limited the extensibility of the peri-articular tissues and their mobility upon one another. The existence of this cause of limitation, the effects of which were constantly observed after an injury or an inflammation of a joint that had compelled its prolonged immobilization, had led to a wide-spread belief that it arose from or was materially favored by the immobilization; and, although of late years the opinion had been vigorously and successfully combated by surgeons of large experience and accurate methods of thought, it still found expression in the quite general use of passive motion at an early stage, with the object of thereby removing or preventing the cause and its consequences. The belief appeared to have arisen partly by generalization from certain observed anatomical conditions, partly from the unquestionable fact that if a joint was kept movable it would not be stiff, and partly from the clinical observation that many joints that had been treated by passive motion had preserved or regained their functions. The opposing view was based upon the theory, supported by observation and experiment, that immobilization was not in itself a cause of ankylosis; that it was, on the contrary, the most efficient agent we possessed against the inflammation which was the primary cause of most stiffness, and that passive motion was powerless to prevent ankylosis when contributory conditions thereto were present; according to it, passive motion was either harmful or needless. The same two results—permanent stiffness and more or less complete restoration of function—were also found after prolonged immobilization. The problem might therefore be stated as follows: After an injury a joint became tender, swollen, and stiff; in certain cases, under either method of treatment, the stiffness was permanent; in others it gradually disappeared. The question was, therefore, Was passive motion or immobilization during the first six weeks or two months likely to furnish the larger proportion of the latter class? The primary cause of the exudation and of the proliferation of connective tissue that were recognized as the anatomical obstacles to motion was, of course, the original traumatism; the secondary cause was the following inflammative reaction. The severity of the injury was in each case a fixed quantity; the variable factor—the only one that was to be increased or diminished by the treatment—was the inflammatory reaction. Rest was universally admitted to be the best antiphlogistic measure that could be applied to an inflamed joint. Under its influence swelling, heat, and tenderness subsided, and the amount of cicatricial tissue that was formed was that from the original traumatism. It only remained to inquire whether rest had compensating disadvantages to offset its advantage in restricting the amount of cicatricial tissue and whether passive motion was free from them. An important disadvantage at once suggested itself—namely, that the torn tissues might unite with shortening; but would passive motion prevent it? Both clinical observation and theoretical considerations indicated that passive motion in this stage not only did not avoid the disadvantage arising from immobilization, but, on the contrary, actually increased it. In short, it might be said that the ankylophobia of the surgeon was more dangerous to the patient than the traumatism. The author thought that a certain amount of limitation of motion was unavoidable, but its extent could be measurably restricted by systematic massage, which hastened absorption of the exudation and assisted very materially in the restoration of mobility, and also permanent elevation or suspension of the limb; finally, by changing the attitude of the limb at intervals of a few days. It was to be understood in thus referring to passive motion, that it was in the stage of reaction alone, when it was followed by persistent pain and soreness, that harmful results were observed, and that at a later period, as supplementary to the natural use of the limb, it had its value.

Of the various deformities that might result from unreduced displacement after fracture of either condyle, only one was referred to, that known as the "gunstock" deformity. It would be remembered that the long axis of the fully extended arm deviated outwardly from that of the arm, and that, as the axis of motion at the elbow was at right angles to the forearm, it deviated correspondingly from the transverse axis of the condyles, passing through them at a level lower on the inner than on the outer side. A displacement of the internal condyle upward, or of the external condyle downward, their attachments to the radius and ulnar remaining unbroken, would annul this outward deviation of the forearm and bring the latter into line with the arm or even incline it to the inner side, and, as the breadth of the condyles was not great, a comparatively slight displacement might be sufficient to effect this change. This was the "gunstock deformity." It was hardly noticeable when the elbow was flexed, but was very obtrusive and ungraceful when the elbow was extended. In the case of fracture of the internal condyle the displacement of the fragment could be readily occasioned by pressure upward against the flexed elbow, the pressure being transmitted to the condyle through the olecranon. Such pressure was produced when a posterior rectangular splint was used with a sling that passed under the elbow and was short enough to take the weight of the entire limb. If the limb with a similar splint was supported only at the wrist, this undesirable pressure was not made, for the arm carried the splint, not the splint the arm. Spasmodic contraction of the flexors and extensors of the forearm might also make this pressure. In the case of fracture of the external condyle the mechanism of displacement downward of the fragment was not clear.

The indications for treatment were reduction of the displacement, if it existed, by pressure upon the fragments, or by abduction of the extended forearm until its outward deviation was equal to that of its fellow, and then immobilization by dressings that would not reproduce the displacement. The importance of immediate and complete reduction of such displacement as might exist when the case came under observation was such that, whenever reasonable doubt existed as to the extent of the displacement or the completeness of the reduction, an anæsthetic should be given.

In supracondylar fracture, in which the usual displacement was of the lower fragment backward and upward, permanent traction was generally necessary to overcome muscular action. This might be effected by vertical suspension of the limb, the patient being kept in bed, or by a weight suspended from the upper part of the flexed forearm while the patient was erect. The former method was open to the objection that it permitted an angular displacement. It was, however, of use in the first fortnight after the injury.

In intercondyloid fracture with marked separation there was no measure to maintain reduction, and limitation of motion was to be expected. Experience with compound fractures in which the shifting of the fragments could be recognized by sight and touch had impressed the author with the exceptional difficulties attending this class of fracture, and he had on one occasion felt constrained to pass a long steel pin transversely through both condyles and the long projecting end of the upper fragment, for in no other way could they be kept in apposition. Plaster of Paris used during the first week was dangerous, unless made so loose that it was useless as a support. He preferred a broad heavy posterior splint extending from the axilla to the hand and covering about two thirds of the circumference of the limb, the elbow being flexed at a right angle; while hardening, this could be so molded by pressure about the elbow as to maintain the fragments in place. Traction by weight could be used as in a supracondylar fracture.

In fracture of either condyle the habitual method of treatment was by a posterior rectangular splint of metal or plaster, with the substitution, in many cases, of plaster incasement during the second week. The forearm was supported across the chest by a sling at the wrist within, not outside, the splint, and the dressing should be worn for about a month. It had seemed to the author that immobilization in full extension of the elbow, though presenting certain disadvantages which would prevent its general acceptance, might be advisable for the first ten days or so if the patient were kept in bed, then substituting flexion at a right angle, hoping by that time the fragment would have contracted adhesions preventing its easy displacement upward.

With fracture of either condyle there was sometimes associated dislocation of the bones of the forearm and the fragment from the humerus. This complication was more frequent with fracture of the internal condyle, the dislocation being backward and upward and the head of the radius resting behind the external condyle. Under such circumstances retention might present special difficulties, and they appeared to be best met by immobilization with the elbow flexed well within a right angle. Carefully conducted massage might also be employed.

The extreme limit of time for the wearing of a splint should be about six weeks for the supracondyloid and intercondyloid fractures, and about four weeks for the fracture of either condyle. After the removal of the splint the limb should be for a few days supported in a sling and exercised in light movements. If the motion gained was slow, it might be hastened by carrying a weight, or by other mechanical aids.

An animated discussion followed, in the course of which the speakers were unanimous in their appreciation of the thoroughness of the author's paper. The points at issue were, as usual, the relative merits or demerits of the flexed and extended positions and the resort to early passive motion as against protracted immobilization.

Retroperitoneal Tumors, their Anatomical Relations, Pathology, Diagnosis, and Treatment, with Report of Cases.—This was the title of a paper by Dr. ALBERT VANDERVEER, of Albany. He said that as our experience in abdominal surgery increased we found that there were yet many problems confronting us. Of these there was none which required more careful research, or was capable of greater improvement, both in operative management and in prognosis, than new growths arising from the retroperitoneal space. To bring this subject more fully to the attention of the association, the following cases were reported:

Case I.—Miss S., aged forty two years, had consulted the author in March, 1882, on account of a tumor located in the back. This had been first noticed fifteen years previously. Examination had showed a large tumor attached to the right side of the spine at the level of the first lumbar vertebra. It had seemed attached to surrounding tissues, of a smooth contour, and hard to the touch. Operation had been advised but declined. The tumor had continued to increase in size until November, 1888, when she had died from other causes. The autopsy had showed the origin of the growth to be the connective tissue about the right kidney. It had been encapsulated and could have been easily removed. It had weighed eight pounds. The microscope had revealed the presence of fat and myxomatous tissue, with an abundant small round-cell infiltration.

Case II.—Mr. V., aged forty-one years, married, had first been seen May 28, 1889. Five years before he had strained his back. The pain following this had not been relieved by any treatment. Three months ago he had become worse. The abdomen had begun to enlarge. The pain had been more severe. He had lost appetite and flesh. The ankles had become œdematous and a distressing cough had developed. The urine had been scanty and high-colored, but free from albumin and casts. The abdomen had been more prominent on the right side. Fluctuation could not be elicited, but palpation had given an impression similar to that of a lipomatous tumor. On the right side there had been flatness from the nipple to the crest of the ilium, with the exception of a narrow space along the border of the ribs, where there had been a zone of resonance. The probability of the growth arising from the kidney had been strong and an exploratory abdominal section had been advised.

This had been done June 1, 1889, an incision five inches long being made over the external border of the right rectus muscle. The growth had been reached and the capsule divided, but from its attachments it had seemed futile to attempt its removal. The patient had recovered from the operation, and for a considerable period had been relieved of pain. The growth continued to increase in size, and the patient had died October 21, 1889.

The tumor, which weighed fifty-six pounds, had originated behind the peritonæum and had been attached to the right kidney. The microscope had showed it to be an adipose tumor presenting a condition of myxo-sarcoma with sarcomatous infiltration.

Case III.—Mr. N., aged thirty-nine, a brass-worker by occupation, had begun to have vague abdominal symptoms late in the year 1888, with failure of flesh and strength. In June, 1889, he had developed jaundice, and a tumor had been found in the left hypochondriac region and lumbar region. This had been as large as a child's head. An exploratory operation had been advised but refused. It had been believed that the growth was connected with the left kidney. The tumor had continued to grow, and in November, 1889, the patient had died. The tumor had been found to have sprung from the region of the left suprarenal capsule and involved it. It had also surrounded the kidney. It had weighed six pounds and an eighth. The microscope had showed an appearance similar to that in Case II, but with a greater preponderance of sarcomatous and myxomatous elements.

A careful study of the reported cases and of the literature of the subject impressed one with the belief that the most frequent origin of these growths was in the connective tissue of the capsule of the kidney, and that the next most frequent seat was the suprarenal capsule. None of these tumors could be said to be absolutely benign—even those which were made up entirely of histological elements, such as the lipoma, fibroma, or myoma. While they showed no great tendency to recurrence after complete removal, yet, from the great size to which they developed and their tendency to undergo degenerative changes, they could not be classed as innocent growths.

In many of the reported cases the origin was not stated, and indeed it would, from the subsequent changes in anatomical relations, seem quite impossible to determine the exact origin of many of the large retroperitoneal growths. They almost always presented themselves in the line of least resistance—that was, anteriorly. Careful study of these tumors showed them to be of a mixed variety, containing both the elements of the lipoma and myxoma tissues, which were histologically very closely associated. Fat was developed from embryonal mucin, and in post-fœtal life occupied those spaces in the economy which later in the fœtus consisted of myxomatous elements. Doubtless many of these growths arose, under suitable conditions, from congenital neoplasms. These growths often became cystic and reached immense proportions. They often presented a numerous round-celled infiltration, pointing to a sarcomatous element. Sarcoma, either in its typical form or in combination with other tissues, often occurred.

Diagnosis.—There was not a single symptom that was pathogenic, and the diagnosis was more dependent upon the process of exclusion. Tumors of the other abdominal and pelvic organs, as well as aneurysms and tumors of the abdominal wall, must be excluded. As already stated, many of these tumors had their origin in the capsule of the kidney or the connective tissue surrounding it. These presented, in their earlier stages at least, physical signs differing in no respect from tumors of the nephritic parenchyma. In none of the cases reported as renal, hæmorrhage or albuminuria, with or without casts, occurred, conditions which were the rule with tumors of the parenchyma of the kidney. A valuable adjunct in the diagnosis consisted in noting the relation of the tumor to the intestinal tube as shown by the insufflation of hydrogen gas.

Prognosis.—Without operative interference there was but one termination. The rapidity with which the fatal result was reached varied with the character of the growth. The mean duration of life after the discovery of the tumor was about nine months. Operative treatment offered much promise. The immediate mortality of the operation was great, yet, from the hopelessness of the condition, it was to be urged with great earnestness.

In operations for the removal of retroperitoneal growths, choice of incision would usually fall in the line of the *linea semilunaris*. By the separation of the peritonæum from the internal border of the tumor, it might be attached to the internal border of the abdominal wound, making the whole field of operation extraperitoneal. The incision of the posterior fold of the peritonæum should be external to the attachment of the mesentery of the colon, although this was not absolutely necessary. In the removal of the growth by enucleation, care should be taken to determine the source of the blood supply and the erlation of the great vessels. There were likely to be large thin-walled veins deep in the wound, requiring ligature. At times it would be found necessary to remove the kidney with the tumor. As in all abdominal work, the operator should be prepared for any and every complication. After enucleation, the cavity should be thoroughly drained. The after-treatment was the same as in all other severe abdominal sections.

Like all other conditions in surgery, there was certainly a better understanding of these cases going on. A more correct and early diagnosis, as was the case in all that pertained to medicine and surgery, would surely bring a larger percentage of recoveries. These were purely surgical cases, no medicines, no mineral waters or baths, electricity, or other lines of therapeutics having, as yet, been of any service.

Book Notices.

Practical Pathology and Morbid Histology. By Heneage Gibbes, M. D., Professor of Pathology in the University of Michigan, etc. Illustrated with sixty photographic reproductions. Philadelphia: Lea, Brothers, & Co., 1891.

This work is intended to furnish the student with the instruction he needs to enable him to study with the microscope the different forms of micro-organisms in their growth, their action by inoculation, and their morphology. More than a third of the space is devoted to the preparation of specimens and cultivation of micro-organisms, about one half to the morbid histology of the tissues, and the remainder to photography with the microscope. With regard to the first and second portions, they are well written, and give clear directions in histological technique, cutting, staining, and mounting sections, and in the cultivation of bacteria. The third part, which treats of morbid histology, is illustrated by quite a number of photographs, which reproduce the pictures seen in the microscope with a fair degree of clearness. These form really the most important contribution to the literature on this subject to be found in the work, and deserve to be printed on paper which will bring them out to better advantage. The section devoted to photography with the microscope is excellent.

This is a fairly good work of its kind, but there are more complete and therefore more valuable works extant on these subjects, and it advances little if anything that can be called new.

BOOKS, ETC., RECEIVED.

A Text-book of Physiology. By M. Foster, M. A., M. D., LL. D. F. R. S., Professor of Physiology in the University of Cambridge, etc. Fourth American from the Fifth English Edition, thoroughly revised, with Notes, Additions, and Two Hundred and Eighty-two Illustrations. Philadelphia: Lea Brothers & Co., 1891. Pp. xvi–33 to 1072. [Price, $4.50.]

A Manual of Hypodermatic Medication: the Treatment of Diseases by the Hypodermatic or Subcutaneous Method. By Roberts Bartholow, A. M., M. D., LL. D., Emeritus Professor of Materia Medica, General Therapeutics, and Hygiene in the Jefferson Medical College of Philadelphia, etc. Fifth Edition, revised and enlarged. Philadelphia: J. B. Lippincott Co., 1891. Pp. xviii–17 to 540. [Price, $3.]

Resection as a Substitute for Primary Amputation. By Thomas H. Manley, M. D. [Reprinted from the *New England Medical Monthly.*]

Medical Communications of the Massachusetts Medical Society. Vol. XV, No. 11, 1891.

Report of the Commissioner of Pensions to the Secretary of the Interior for the Year ending June 30, 1891.

Énucléation des fibro-myomes utérins par la voie abdominale: ses avantages sur l'hystérectomie supra-vaginale. Par le Dr. R. Chevrier d'Ottawa, Canada. [Extrait des *Nouvelles archives d'obstétrique et de gynécologie.*]

L'autre voie; à propos de l'hystérectomie par la méthode Péan-Segond dans les inflammations pelviennes. Par Dr. A. Doléris. [Extrait des *Nouvelles archives d'obstétrique et de gynécologie.*]

Studies in Pathological Anatomy. By Francis Delafield, M. D., LL. D., Professor of Pathology and Practical Medicine, College of Physicians and Surgeons. Volume ii, part 4. Chronic Bright's Disease. Plates lxxxiii–cxxxiii. September, 1891. New York: William Wood & Co., 1891. [Price, $5.]

Report on Cholera in Europe and India. By Edward O. Shakespeare, A. M., M. D., Ph. D., of Philadelphia, United States Commissioner. Washington: Government Printing Office, 1890. 4to, pp. xxvi–945.

A Sketch of Surgical History (after Hecker). By Dr. John Hund. Chicago: E. Ackermann & Co., 1891. Pp. iv–38.

Scientific Medicine in its Relation to Homœopathy. By Professor Theodor Bakody, M. D., of the Buda-Pesth University. Translated from the German by Rudolph F. Bauer, M. D. Philadelphia: Boericke & Tafel, 1891. Pp. 60. [Price, 50c.]

Tables for Doctor and Druggist. Comprising: i, Table of Solubilities; ii, Table of Reactions and Incompatibles; iii, Table of Doses and Uses of Medicines; iv, Table of Specific Gravities; v, Table of Poisons and Antidotes. Compiled by Eli H. Long, M. D., Professor of Materia Medica, Buffalo College of Pharmacy, etc. Detroit: George S. Davis, 1891. Pp. ii–133. [Price, $2.]

Seventeenth Annual Report of the Secretary of the State Board of Health of the State of Michigan, for the Fiscal Year ending June 30, 1889. Pp. lxii–324.

Transactions of the Michigan State Medical Society for the Year 1891. Volume xv. Pp. 400.

New Inventions, etc.

A GYNÆCOLOGICAL OPERATING TABLE FACILITATING THE EMPLOYMENT OF TRENDELENBURG'S POSTURE.*

By Francis Foerster, M. D.,

INSTRUCTOR IN GYNÆCOLOGY AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

To make clear the motives which guided me in designing this apparatus, I must point out the great difficulties with which we meet in finding a suitable table when we are forced by circumstances to perform a major gynæcological operation at the patient's own home. It frequently happens among the poor classes that for certain reasons they can not enjoy the hospital and the facilities it offers, and it is in these cases that our choice among the several articles of furniture available is the most limited one. The bed has to be excluded for obvious reasons; the dining table is usually too broad and clumsy; the kitchen table may answer, provided that it is built solidly and has not seen too many days of use. Compelled to compromise with anything, we call this piece of furniture into service, and, after assuring ourselves that the sanitary conditions of the house do not forbid the operation, we proceed. Everything may go well, but it may be our misfortune that the table, at the moment when we least expect it, gives way and the operation must be continued under the most embarrassing circumstances. Such an accident is so much the more likely to happen when we try to get our patient into Trendelenburg's posture by putting boxes under one end of the table to elevate the same, thus weakening the whole structure. To prevent such an occurrence, or rather recurrence—as it has happened to me—and to enjoy at the same time other facilities, I had this portable table constructed.

The table is destined for gynæcological operations, but may be used to advantage for examination of patients in narcosis in Trendelenburg's posture.

The table is constructed of galvanized angle iron and nickel-plated steel bands. Folded up, it forms a grate-like frame, the legs being fastened by hinges, and fitting when closed exactly into the frame. The top is formed of a series of steel bands, each one a quarter of an inch wide, at a distance of four to five inches from each other. The greater part of the top is taken up by the arrangement for Trendelenburg's posture.

The height of the table is thirty inches; when the frame is erected, fifty inches; and the width is twenty-three inches. The structure is calculated to sustain a weight of over five hundred pounds.

The following points I consider of special advantage: The table can be cleaned in all its parts with the greatest facility, the form of the apparatus is quite compact, so that it may be transported when necessary in the operator's own conveyance, and the weight is only forty-eight pounds. The arrangement for establishing Trendelenburg's posture is most simple. It consists of a double-hinged frame, which covers about three quarters of the top of the table. The upper end of this frame rests on pivots, which enable us, by lifting it on the lower end, to form an inclined plane. One part of the frame, thirty-eight inches long, serves then for a resting-place for the patient's body, while the other part, twenty-two inches long, acts as a support. Before the operation the frame is unfolded so that the support lies horizontally. The patient is then placed on the table in such a way that the knees rest on the connecting-joint of the support—a round rod. Two suitable straps fasten the legs of the patient to the support. Should the necessity arise of establishing Trendelenburg's posture, one or two persons will take hold of the rod between the knees of the patient and lift he inclined plane and the patient; the support will then drop and find a resting-place on the rod which runs through the frame. There is a ratchet on the back of the support to regulate the height at will.

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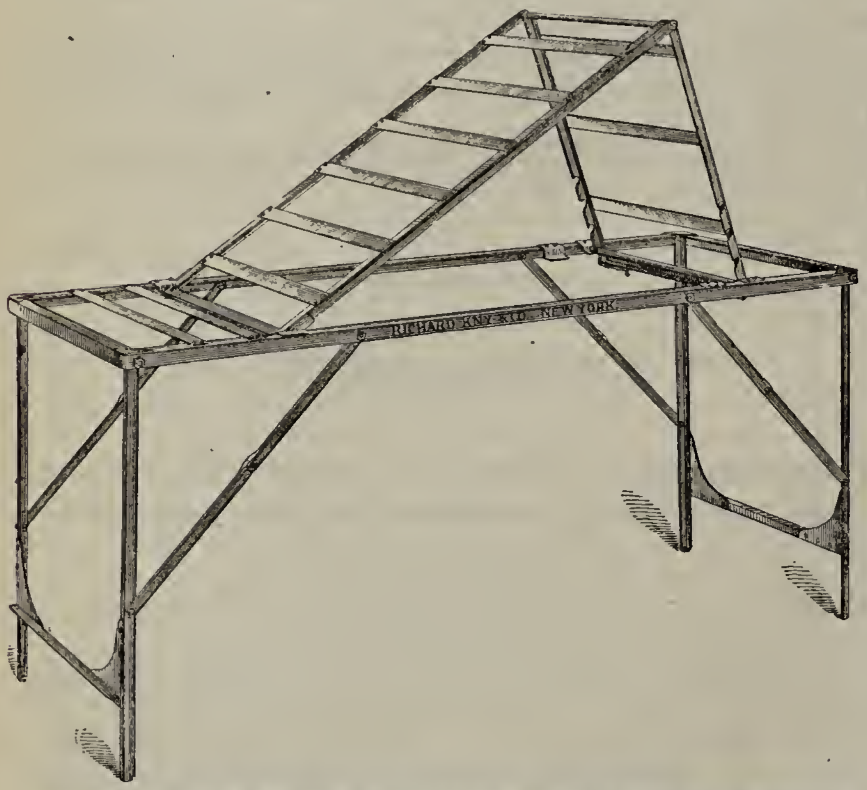
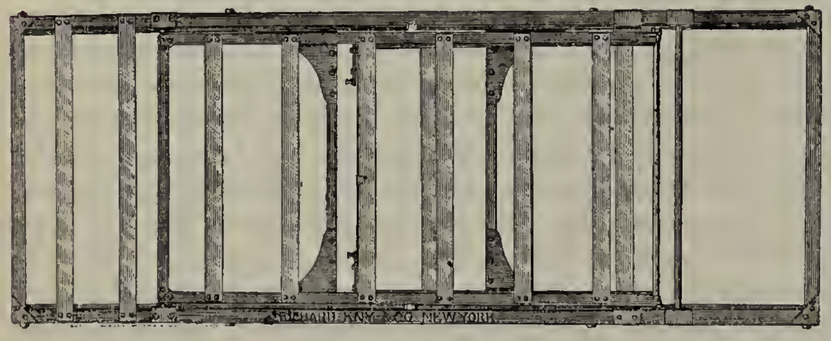
* Demonstrated before the Section in Obstetrics and Gynæcology of the New York Academy of Medicine, October 22, 1891.





When irrigation of the abdominal cavity is indicated, the patient may be lowered readily by disengaging the support. We enjoy now the great advantage that the irrigating fluid flows off directly through the grate-like table, a flooding of the patient's clothing and of the operating table being thus avoided. A piece of rubber cloth, fastened to the four legs of the table, will catch the liquid and conduct the same to a vessel standing under the table, saving the carpet and floor from being soiled.

To make the table suitable for operations in the lithotomy position, I arranged the steel band covering at the upper end so that the bands come closer to each other. The same straps previously used to fasten the legs are then used as a part of the leg supporter, and to these we fasten two long straps, which will be buckled to the frame of the table on each side. By adjusting these, the operator will be able to bring the legs higher or lower at his option.

Lastly, I may mention the low cost at which the table can be constructed, this being due to the simplicity of the apparatus and the inexpensiveness of the material used.

Messrs. Richard Kny & Co., 17 Park Place, are the manufacturers.

228 West Eleventh Street.

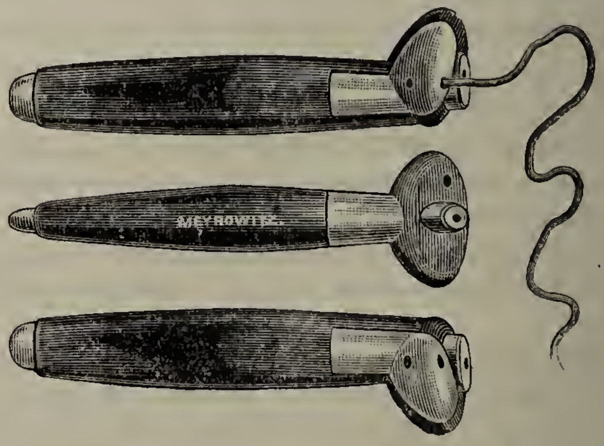
NEW LARYNGEAL TUBULAR ELECTRODES AND THEIR MODE OF APPLICATION.*

By J. Mount Bleyer, M. D.

It is found that each succeeding age has either given birth to new scientific facts or has elaborated pre-existing ones.

Scientific researches are rapidly removing the veil of many a mystery which formerly covered the practice of medicine, and now, instead of blindly following empiricism, we consider it unnecessary and unscientific to afflict our patients with drugs only, when by the judicious application of a few natural laws we can obtain the desired results.

Some experimentation in the proper mode of application of electricity to the interior of the larynx with the various electrodes known to us, and invented by the different laryngologists, has led me to construct an electrode on the principle of an intubation tube. Every one who has been accustomed to the application of electricity to the interior of the larynx with such electrodes as are at our disposal knows from his own experience the difficulties he encounters with the use of the electrode in touching those cords and muscles of the larynx to be treated. The application, if successful, lasts either for a few seconds, or no application to the desired place is made at all. Even when the larynx is under the influence of a solution of cocaine, spasms almost always follow these manœuvres, and harm to the patient is the invariable result. A second attempt makes matters still more difficult, and consequently it is often administered in a haphazard fashion without any regard to the feelings of the patient. Such treatment must be pronounced child's play—mere toying. No effect can be expected with such superficial usage, and a valuable tonic of high order is wasted. In short, nothing can be expected of the therapeutical value of electricity unless applied in a proper manner.



The above cut shows the laryngeal tube. It is made partly of hard rubber for insulation purposes. The heads of the tubes act as the electrodes. They are made for the right and left side—or for the electrolyzation of the entire larynx. The heads, to extend an inch down the tube, are made of metal, in order to act as conductors to the current. The conducting cords are attached to the heads of these electrodes and are covered partly with soft-rubber tubing, so as to prevent their being destroyed by the moisture of the mouth. Several sizes of these laryngeal electrodes are made, to accord with the size of the larynx, either for the adult or child.

The patient is placed erect in the chair of the operator. Examine the larynx previously for the size of the tube required. This must be judged by the eye, with the aid of the laryngoscope. Before passing the tube, spray a solution of cocaine (10 per cent. or more) directly around to the deeper parts of the larynx and trachea. (For further information as to spraying the deeper parts of the larynx and trachea, I must refer the reader to a detailed paper read by me before the American Medical Association, May 1, 1890, and published in its *Journal*, November, 1890, entitled A New Method of Laryngeal and Bronchial Medication by means of a Spray and Tube during the Act of Deep Inspiration.) The passage of the electrode is precisely the same as if the patient were to be intubed after the O'Dwyer method. The instrument may either be guided into position by a laryngeal mirror with the aid of illumination, or by the guidance of the finger. The latter is the better way. Some practice is always necessary. No force whatever should be used. The conducting cord is fastened in a secure manner to the electrode, which may be attached to one of the poles of the battery before its passage or immediately after. Very few spasms occur; if they should, wait a few moments before making contact with the current. The sponge electrode is placed either on the nape of the neck or in front of the throat. The removal of the electrode is accomplished by drawing upon the conducting cord. No extraction with forceps is necessary.

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* Read and demonstrated before the American Electro-therapeutical Association, at Philadelphia, September 24, 25, and 26, 1891.

Many advantages are gained in applying the current by means of these tubular electrodes; among the more important ones—avoidance of continual spasms of the laryngeal and other muscles in the attempt to apply the electrode; steady flow of the current; no interruption; as much time in its application as is required; no interference with respiration; easy technique; no illumination or laryngeal mirror during the application of the current: and many other points.

These electrodes are manufactured by the firm of Meyrowitz & Bros., Twenty-third Street and Fourth Avenue, New York city.

118 East Sixteenth Street.

Miscellany.

Intestinal Obstruction.—At a meeting of the Philadelphia County Medical Society, held on October 14th, Dr. M. Price read a paper as follows:

The treatment of obstruction of the bowel is one of the greatest importance to the public as well as the profession. There is no subject or condition where life so positively depends upon a proper appreciation of the conditions and immediate and correctly applied surgical treatment.

There is no condition where the complications are so varied, from simple hernia to virulent malignancy; there are so many conditions that will produce obstruction, that the wonder is that any of us get through life with a complete and healthy bowel in our body.

The causes of obstruction are almost innumerable, and every case is one to be dealt with in a manner peculiar to itself. The life of the patient depends upon the ability of the operator to cope with the complications, more than any other factor.

To appreciate the difficulties to be overcome in this department of abdominal surgery, one has but to examine the work of Senn and a host of others who have done work in the abdomen, and ask any one of them what part, if any, is easy of accomplishment.

In most cases of obstruction of the bowel there is no indication or symptom to indicate or direct us to the point of obstruction.

We have a patient with an enormously distended abdomen, with symptoms of peritonitis, with fæcal vomiting, with pulse and temperature to indicate a condition of things for most urgent and prompt action. Or we may have an obstruction with scarce one of these symptoms to direct us in our investigation. Help can only come to a patient suffering thus from one who can correctly read the symptoms and correctly interpret their magnitude. Abdominal surgery for many years offered hope of relief to a very small number of abdominal diseases, but now surgery has thrown open the door to all who suffer with abdominal disease with the same opportunity for relief that the surgeons offered only a short time ago for ovarian tumors, with a vastly improved method and a greatly reduced death-rate.

In obstruction of the bowel there are so many questions and conditions to be considered before operation that when the time comes to operate it is very much like a well-planned battle-field with every division in position and all the minor details settled: the work of battle begins and the surgeon only waits the development of the enemy or disease with which he has to contend in the completion of his work in the removal of the conditions present.

The first question to be decided is, Is there a strangulation present, or an obstruction, or a condition of partial paralysis induced by overdistention by a costive habit, or a condition produced from loss of proper nerve force for the performance of bowel digestion and elimination, or is it a paralysis following convulsion with general paralysis of the entire body? All these questions have to be answered some time in the experience of every operator, not all in the same case, but they all have a place in the consideration of the question in hand, and the operator who does not keep his mind impressed with such possibilities will sooner or later have cause to regret.

There is no better place than just here to relate a case in point. Dr. Ewing, of West Grove, asked me to see a patient with symptoms of obstruction of the bowel, a woman sixty-five years old, who had been suffering for five days from great distention, the bowel showing through the abdominal wall very much like a mass of sausage under a linen cloth, an increased pulse, and a temperature something above the normal, but not enough to indicate a serious condition. The other symptoms indicated an element in her condition that led me to investigate further for a cause. The doctor had used all the agents, purgative and others, without effect; the stomach now refused all drugs. The daughter stated that the patient had a convulsion two nights in succession before the doctor had been called to the case, and that she had been quite stupid and unlike her usual self since that time. The knuckles of intestine lay without a particle of movement, no peristalsis; in fact, there is a condition of paralysis following a convulsion that so closely simulates obstruction that it is with great difficulty that we come to a proper appreciation of the symptoms. This patient had also vomited very questionable matter, and this, together with the other symptoms, seemed to make the case a plain one for operative treatment; but there was a question of doubt, and, after waiting a period, sulphate of magnesium in large and repeated doses by injection brought the result, clearly showing that we must be on our guard with every case.

The stomach exercises a marked influence in obstruction of the bowel; the changed current and direction of the bowel contents, in their effort to find an exit, change the stomach from an organ for the digestion of food to that of a pump for the elimination of the contents of the bowel through the mouth, and by so doing give us a direct and positive indication for treatment, which to be most effective must precede any operative treatment that may be required.

We should empty the stomach and wash out all the contained fluid and solid contents. How best to do this is a question by no means yet answered. For my part, I much prefer the stomach, aided by warm water and a mild emetic, to do the work, when the patient is in a condition to warrant such an effort, but many of them will not; then only the pump must be used. It is a most disagreeable instrument and should be used with great care, and not removed until all the work of flushing the stomach is finished. If you operate for strangulated hernia after there has been fæcal vomiting and leave the stomach to get rid of its disagreeable contents as best it can, you have but half done your work, and more than probably the portion left undone will finish your patient.

In a complete cleaning out of the stomach you have added greatly to your patient's comfort and to his immediate and rapid recovery, besides having left nothing in the way of a clear surgical conscience. Therefore a stomach-pump is requisite to perfect work in obstruction.

Treatment.—The saline treatment of complicated inflammatory conditions and those simulating inflammatory obstruction of the bowel is of twofold value: first, in clearing out a bowel not obstructed, but torpid and distended with all the filth of months; again, in actual obstruction, where we have a condition of paralysis produced by the inflammatory condition, which can best be removed by sulphate of magnesium. The effect of the saline does not in the least hinder the operative treatment, but prepares the patient for a much more speedy recovery from the effects of the inflammatory condition and the operation for the removal of the cause of the obstruction. If the obstruction is purely mechanical, then the saline aids the efforts of Nature to promptly throw off all the retained and decomposing materials remaining dammed up in the intestine by the obstruction.

After an obstruction of the bowel has existed even for only a short time, the distention has in most cases been so great that it takes a long time for the bowel to recover its tone and normal function, and if the saline treatment has been used before the operation, the time for recovery will be much shortened and the risk and suffering of the patient correspondingly lessened. All those who have done intestinal work have been impressed with the length of time after an operation for strangulated hernia before any action of the bowels can be had, even with salines. I have had as much as six and eight days pass before I could get the bowels moving in cases of obstruction of the bowel from inflammatory incarceration. And in another case as much as eleven days intervened after a resection of five inches of obstructed colon for epithelioma and uniting the ends by the Senn method. In this case four ounces of magnesium sulphate were given before there was any result. In several of my cases I feared that I should have to do the operation over; and I have no doubt the abdomen has been reopened many times after abdominal operations for a supposed obstruction when none existed. So great care and judgment are required in these cases that something positive only should drive us to a second operation. Simple want of a movement of the bowels should put us on our guard and make us watchful for more certain symptoms of obstruction.

Now as to how sulphate of magnesium will give the best and quickest result. The use of small and repeated doses diluted with as much water as the patient will take is by all odds the best mode of giving the drug. When the stomach is irritable and sick, it is best given by injection *per rectum*—an ounce of the drug in half a pint of warm water. If you can give it by the stomach and bowel at the same time, you will soon get the result.

There can be no objection to other drugs being used, such as the mild chloride of mercury or Rochelle salts, that will accomplish the object for which we use purgative treatment. Mixed treatment with opium and purgatives does no good, but introduces an element of doubt and danger that is hard to estimate; it also tends to prevent a proper appreciation of what Nature is doing to save the internal viscera from permanent destruction and death. If we give purgatives we must give them for a purpose, and until that object is attained we should wait until we are perfectly satisfied that nothing but an operation will open the way for a passage, or that our patient can not be relieved, and then the opium treatment will be appropriate; then use it, but not while there is a chance for the patient's recovery.

Mode of operating.—The method of operating for strangulation of the bowel or hernia is of great importance and should be seriously considered before operation. The method of cutting directly down on the hernia will not answer in all cases; old irreducible hernias, where both sides are down and irreducible, with symptoms of obstruction; double femoral, also irreducible; and cases where there are no external symptoms pointing to the location of the disease—these can best be dealt with through a median incision.

The usual opening for abdominal operations of an inch and a half gives plenty of room in which to do all the work that is required for the relief of the patient in most cases, and when we find we require more room it is easy to enlarge the incision. Through this opening a thorough investigation of the abdominal cavity can be made, the old hernial irreducible protrusions be examined with two fingers in the peritoneal cavity, and the seat of the strangulation be located.

The fact that there is a hernial protrusion on either side is no proof that one of them is the point of strangulation; it may be anywhere in the length of the intestine. Then, to open such a patient over the supposed point of strangulation would greatly complicate the case and leave the surgeon in doubt as to whether his patient had been relieved of his strangulation, for often in operating for strangulated hernia I have had the intestines slip from the sac into the peritoneal cavity, and it was considerable trouble to get hold of the portion strangulated so as to examine its condition before closing up the abdominal cavity. Until the point of strangulation is found and examined, you can never be sure your patient is relieved of his dangerous condition.

Then, again, there is no better way to ascertain which is the obstructed side than through a median incision, both sides being within easy reach, and capable of being examined and dealt with with certainty. When the position of the strangulation is determined, it is an easy matter to cut down and release the hernia from its sac, return it to the inside, bring the intestine to the median opening, and there examine its condition, and if there is a show of returning life to the strangulated portion, then wash it with warm water that has been boiled, and return it to the peritoneal cavity with as little delay as possible. The closure of the wound is of moment, for on the manner of doing this depends the radical cure of your patient.

Leave the sac outside in position, and take a long, straight needle, and, with two fingers in the peritonæum, push the needle through the abdominal wall, taking care to include all of its wall, so that when it is closed there will be plenty of tissue; it does not require to be very tightly tied, but just sufficiently to make a perfect approximation. Before making the closure, trim up the sac and remove all portions thickened and diseased that could interfere with perfect union of the hernial wound.

The inside fingers act as a guide to protect the bowels and to aid in a proper placing of the sutures, and as the sutures are being tied assure you that all is clear and a perfect closure made. This can be determined with perfect accuracy.

The gaseous distention of the abdomen is a most serious complication, and offers many impediments to a proper diagnosis; that it must be got rid of before the patient be relieved is admitted by all. Puncture through the abdominal wall with any instrument is dangerous in the extreme; to use a hypodermic needle would be a useless procedure, as much larger openings are required before the gas will be discharged. I have repeatedly tried to empty the bowel in this manner, and feel confident that it would require days to do so. An opening should be made with the knife or some instrument that will puncture the bowel, and the instrument then opened, stretching the bowel, giving exit to the gas. For this purpose I have had an instrument made almost identical in form with the little ear speculum, bringing the trumpet to a point, with which to make the puncture. The opening can then be stretched, and the closure will require only one stitch, while that made by a knife would necessitate several. I have used it only once. It answered the purpose admirably. As the needle rapidly enlarges from its point, the bowel must be grasped by the fingers to prevent its slipping while being dilated. Besides this advantage, the instrument shortens the operation, lessens the shock, and prevents leakage. Comparing methods of treating obstruction of the bowel, there is but one treatment—that is, to open the patient and correct the trouble. When I say that, I do not mean that there shall be a half-dozen consultations before this treatment is resorted to, and I will venture to say the mortality will be reduced from its present high figures to fifteen per cent. Those credited as cured by other methods in most instances were mistakes in diagnosis. No one was ever killed or his danger increased by an exploratory operation.

Much of the recent work done in abdominal surgery has been by men who base their opinions on experiments on dogs. This work accomplishes only one good—it prepares the surgeon with manipulative skill and dexterity in operating. But this experimental or dog surgery has not a single feature in common with that on the human subject, for there is no resemblance either in the operation or in the conditions present. The one is on a healthy animal with an intestine of only one third the length of the human, and that has been used for the passage of the coarsest food and the most indigestible materials. There is no nervous element to contend with, no pathological condition to contend with, no distention or delay, no previous shock or destruction of parts, no inflammatory element to remove, no complications to hinder or delay the operative work, no half-dozen consultations, no opium or belladonna previous to operative work—in fact, the one differs from the other as day differs from night. And it is these very conditions and complications and delays that make all the difference between life and death. Could we bring the profession to look at the conditions and dangers of peritonitis and obstruction of the bowel in their proper light, and have all such conditions treated at an early period, there would be some chance for the patient to recover from the mischief already done by the disease, for intraperitoneal inflammatory conditions soon destroy life. The surgeon can not do any harm nor add one feather's weight to the already dangerous condition, but with good work will save hundreds of valuable lives. Senn's experimental work on dogs was for a definite purpose, which he has beautifully set forth in his book and clearly demonstrated to us all, and those of us who work in this field can only hope to be imitators of him.

Dr. Theodore McGraw, of Detroit, gives us a most ingenious method of managing some of the more desperate cases of intestinal obstruction. In complete gangrene of the bowel I imagine it will be of great service in saving life. In these cases we are compelled to make an artificial anus, which will relieve the urgent symptoms of distention, while, at the same time, the rubber ligature recommended by Dr. McGraw is passed, two or three inches below the artificial anus, through the upper and lower segments of intestine, including at least an inch and a half, and tied as tightly as possible, and the knot secured by ligature; then either a continuous or interrupted Lembert suture is used around this ligatured portion, and, by the time the ligature has cut its way through, the union will be complete, without any possibility of leakage, and with but little delay or prolongation of the operation.

Complete exit will be given through the artificial anus to all distending gases and contents of the bowel until the artificial opening is complete (which is in three or four days), when the artificial anus can be closed by silkworm-gut sutures placed at the time of operation. This method also comes to our relief in obstruction of the gall-duct. In these cases the abdomen is opened, the gall-bladder emptied of its contents, the rubber ligature used to unite the intestine to the gall-bladder, the additional suturing of the peritoneal covering of the bowel and gall-bladder employed, so as to insure perfect union, and in three or four days the abdominal wound can be closed with silkworm-gut sutures; the fistulous opening between the gall-bladder and bowel made by the rubber ligature will prevent many of the annoyances and inconveniences of having a biliary fistula.

It will in many ways answer a better purpose than the Senn method, but in the vast majority of cases Dr. Senn's method of anastomosis is our only one to save life; we can not wait two or three days for an opening to be made; therefore, of necessity, we must resort to the method of Senn.

I have used Dr. Senn's method three times, with two recoveries, and must say I have more admiration for him and his work than for any intestinal surgeon in the world.

I have found, in using the Senn plate or the Abbe catgut ring for intestinal anastomosis, that one of the greatest difficulties to overcome was the passing of the silk ligatures through the intestine, there being four or six of them in each plate or ring. When they were threaded in the ordinary sewing needle they became entangled and greatly prolonged the operation, or, if they had to be threaded during the operation, it was the cause of considerable delay, and for a long time I have been trying to find a substitute that would answer the purpose without any of the objectionable delays. I have found the desired needle in the self-threading Supplee sewing-machine needle. In the use of this needle the operation is shortened at least four fifths, all of the threads being passed rapidly and without delay.

The ring or plate placed in position, the operator holds the needle with the open face of the eye toward him, the assistant takes up the ligature, draws it taut at right angles to the needle over the eye, and it is at once threaded. The operator quickly passes it through the intestine, half an inch from its cut border, and the assistant withdraws the ligature from the eye. The same process is gone through with with all the sutures, and it is done in a moment, without delay.

"Ashhurst tabulated fifty-seven cases of laparotomy for acute intestinal obstruction from other causes than intussusception, from which it will be seen that only eighteen terminated favorably. At that time the mortality of laparotomy in cases of intestinal obstruction other than intussusception was over 68 per cent. Most of these operations were *performed without antiseptic precautions*." (Senn, page 28.)

I have had a greater number recover from this operation, and have operated for obstruction only twenty-four times, and always without antiseptic measures, only using clean Philadelphia water; nineteen recovered.

Dr. Ward, of Topeka, Kansas, recommends a most ingenious method for finding the proximal and distal ends of the intestine. Pass the fingers directly down to the attachment of the mesentery to the spine, and the position of the two ends will be immediately established, as the lower attachment of the mesentery must of necessity belong to the lower end of the bowel.

On the Treatment of Perityphlitis.—The following appeared as an editorial article in the *Boston Medical and Surgical Journal* for October 29th:

Jumon, in *Médecine moderne*, somewhat exhaustively reviews the treatment of perityphlitis. The management of this disease, he says, has been greatly modified of late years; it has become chiefly surgical. But it is no less true that at the onset it should be purely medical. Antiphlogistics, refrigerants, and opiates should be employed; everything which excites intestinal action should be avoided—even the saline laxatives and lavements so much vaunted by certain authorities. On this point we remark there is anything but agreement, though all admit that active catharsis is to be deprecated.

At Nothnagel's clinic, in recent cases and during the first two or three days, much reliance is placed on leeches and bladders of ice. As many as eight or ten leeches are applied over the seat of pain and swelling, and the oozing of blood is encouraged by warm fomentations after the leeches drop off. The result of this treatment appears to be encouraging. After the bleeding ceases, the ice-bladder is applied. If this is not well borne, warm poultices or fomentations are substituted. Later on, the abdomen is painted with a mixture of iodoform-collodion, tincture of iodine, and tincture of galls, of each equal parts, and frictions with green soap are resorted to, if absorption of the exudation is slow. Quinine and suitable nourishment is given; opium is prescribed in some, though not in all cases. If the pain is intense, hypodermic injections of morphine are employed. When the inflammation is subdued, and during the period of amelioration, laxative lavements are employed in cases where the bowels are confined. If there still remains sensibility to pressure and a slight resistance, an occasional massage with green soap is ordered.

Vollert cites a case occurring in Nothnagel's clinic where, despite symptoms of the greatest gravity, the patient recovered under purely medical treatment. It was a case of perityphlitis with diffuse peritonitis complicated with pyæmia. The temperature went up on several occasions to 45·5° C. (114° F. ?); the patient had frequent chills, and he spleen was tumefied. Quinine, salicylate of sodium, and antipyrine were given to combat the fever. The patient got completely well at the end of five months.

Out of thirty-four cases, three were fatal. Death in the first patient was due to perforation of the appendix; in the second, to ulcerated medullary cancer of the cæcum; in the third, to intestinal concretions with perforation of the appendix, diffuse peritonitis, followed by perforation of the diaphragm, ulceration of the pleura, and hyperpneumothorax of the right side.

What are the indications for operating in perityphlitis? Jumon, in the article aforesaid, replies that there should be no hesitation as soon as there is certainty of the existence of an abscess. An operation ought not to be thought of during the first few days. He has, in fact, known cases in which the most acute symptoms—high fever and violent pain in the ileo-cæcal region—have accompanied the development of a voluminous tumor, and yet all these inflammatory phenomena have disappeared in a few days under an "antiphlogistic" treatment, and even expectancy. Vollert, chief of Nothnagel's clinic, also agrees with Jumon that an early operation is seldom called for.

On the other hand, if the exudation tends to become chronic, and if there is suppuration with fever, a surgical operation is demanded. An early operation, moreover, is not contra-indicated if there is certainty of the existence of an abscess; also, if there exists an acute peritonitis by perforation, even before the formation of adhesions, as here a laparotomy would be the last chance of life for the patient.

To these indications J. Israel adds another: A laparotomy is indicated in recent cases of perityphlitis when there are grave symptoms, such as frequency of the pulse with normal or subnormal temperature, pallor, or cyanosis, vomitings—in short, when there is aggravation of the general and local state, although there may be no adhesions, and the presence of an abscess may not be demonstrated.

The most favorable cases for operation, according to Jumon, are those in which the exudation is circumscribed, encapsulated. But it will not do to forget that purulent collections of considerable size have disappeared under the influence of medical treatment alone. If there exists already a general peritonitis, the prognosis will be always unfavorable whether an operation be performed or not.

In cases of perforation of the appendix, there should be complete resection of the latter if there are no obstacles in the way, due to adhesions to the cæcum, mesentery, or neighboring intestinal coils. It is certain that many cases get well promptly after resection of the appendix, and that the danger of relapses is prevented by the operation. This fact has led many surgeons in this country to prefer an early laparotomy—which, if successful, is followed by removal of the cause and prompt recovery, with no possibility of a return—to the doubt, anxiety, and risk attending a purely medical treatment. But this subject was so fully discussed in all its bearings at the last meeting of the Massachusetts Medical Society * that we need only advise a careful reading of the report of that meeting. Twenty or thirty years ago the frequency of appendicitis with subsequent fatal peritonitis was pointed out by Dr. J. B. S. Jackson. Operative interference was not then thought of, and treatment halted between, first, leeching and mercury; second, opium.

The New York Academy of Medicine.—The general meeting held on Thursday evening of this week was devoted to the reading of addresses in memory of the late Dr. Abram Dubois (by Dr. A. B. Ball) and the late Dr. Fordyce Barker (by Dr. W. T. Lusk). The anniversary meeting will be held on the 19th inst.

At the next meeting of the Section in General Surgery, on Monday evening, the 9th inst., patients and specimens are expected to be shown by the chairman (Dr. W. T. Bull), Dr. V. P. Gibney, Dr. B. F. Curtis, Dr. A. J. McCosh, and others; Dr. L. B. Bangs is to read a paper entitled Cases illustrating Errors in the Use of the Cystoscope; and Dr. R. H. M. Dawbarn, one entitled Considerations upon the Treatment of Hæmorrhage.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 12th inst., Dr. Louis Fischer will demonstrate Soxhlet's modified milk sterilizer; Dr. W. L. Carr will make a report of the meeting of the American Pædiatric Society; and Dr. W. H. Porter will read a paper on The Physiological Importance of the Proximate Principles and their Practical Utility in the Food Stuffs and in the Nutritive Processes of the System.

At the next meeting of the Section in Genito-urinary Surgery, on the same evening, the chairman, Dr. R. W. Taylor, will read Notes upon Chancroid; Dr. Willy Meyer will report A Case of Suprapubic Lithotomy and Nephrolithotomy in the Same Patient; and Dr. Ramon Guiteras will read a paper on the Treatment of Gonorrhœa.

At the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 16th inst., Dr. W. A. Holden will present Remarks on the Paleness of the Outer Half of the Optic Disc, with some Drawings.

A Leper Colony in Finland.—In its issue for October 31st the *Medical Record* says: Kuusamo is the name of a small town in Finland where leprosy has existed indefinitely, sixteen deaths from this disease having occurred there between 1774 and 1800, and twenty-two between 1801 and 1828. In an account of the settlement by Dr. L. W. Fagerlund, in the *Finska Läkaresällskapets Handlingar* for September, 1891, it is stated that the Government, in 1767, sent to Kuusamo a physician, who was instructed to study the disease carefully and devise some remedy for its cure. His studies appear to have been barren of practical result, for in 1788 the chief medical officer of the district sent to the College of Medicine in Stockholm to inquire how his cases of leprosy should be treated. He was advised to use a decoction of wild rosemary leaves (folia rosmarini silvestris) and also tincture of cantharides in doses of twelve to thirty drops. He was unable to overcome the malady by these means, and so in 1807 it was determined to isolate the sufferers, in order to prevent any further spread of the disease. A building was accordingly erected on a small island in Lake Kitkajärvi, and the lepers were removed thereto. Here they remained until 1845, often suffering from cold and hunger, in consequence of the neglect of those charged to carry wood and food for their use to the shore of the lake.

In 1845 the hospital system was abolished, and the medical officer of the district was instructed to visit the lepers twice a year in their own houses, and to report on their condition to the medical administrative body. These reports were made with regularity for twenty years and then ceased. In 1871 the physician reported that he was unable to find any more cases of leprosy in Kuusamo.

Between the years 1845 and 1865, during which period the semiannual reports were regularly presented, there were eleven cases of leprosy under observation. The evidence to be gathered from these reports as to the contagiousness of the disease is, as usual, indefinite and inconclusive. In one instance the disease appeared to have been communicated from a woman to her husband and to one of her children, and in another a young man seemed to have communicated it to his sister. On the other hand, two of the patients, who were poor and incapable of providing for themselves, were supported by the community, being passed along from one house to another after making a certain visit in each. No case of the disease was proved to have been caused by contagion spread abroad by these peripatetic invalids. Dr. Fagerlund discusses at some length the opinions held by different writers on this subject, but brings forward no new evidence for or against the theory of contagiousness other than the meager facts just cited.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

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* *Boston Medical and Surgical Journal*, vol. cxxv, p. 36.

Original Communications.

THE RADICAL TREATMENT OF NASAL POLYPI (MYXOMATA).

A SUPPLEMENTARY PAPER.[*]

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A few years ago, in a somewhat exhaustive paper on Nasal Myxomata, read before the Chicago Medical Society, I advocated a vigorous surgical treatment having for its object, first, access to and then eradication of the actual seat of attachment. Zuckerkandl's researches on cadavers were summarized (*Anatomie der Nasenhöhle*, S. 64 *et seq.*), by which we demonstrated that *two thirds* of all nasal myxomata originated from the middle meatus, beneath the middle turbinated body, and that approximately *two thirds* of this number took origin from the edges of the hiatus semilunaris, which is a crescentic opening into the infundibular space, whose upward and downward continuations enter respectively the frontal and maxillary sinuses and which is located high up beneath the middle turbinated body. This numerical deduction harmonizes with our own operative experience.

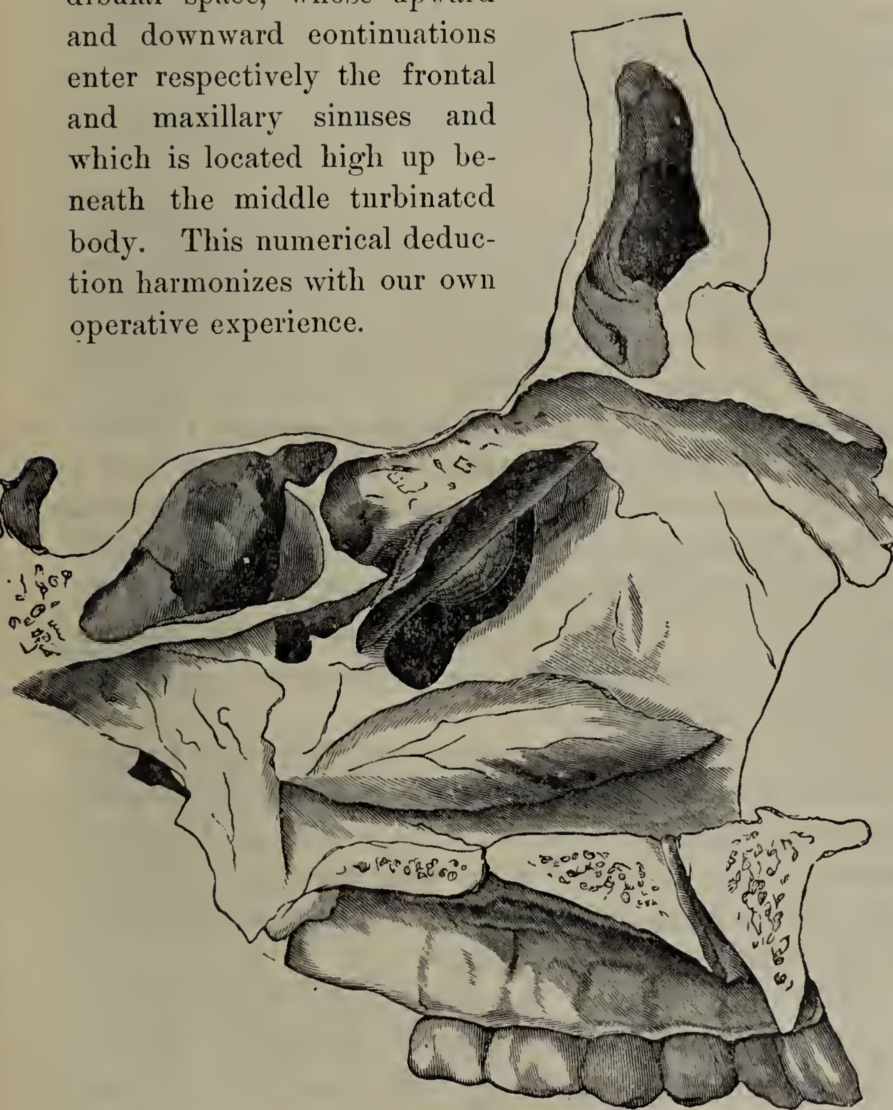

Fig. 1.

In Fig. 1, which is accurately drawn from a divided skull, the middle turbinated body has been broken and turned upward in order to disclose the *hiatus semilunaris* and *bulla ethmoidalis.*

Ætiology.—Well-developed myxomata rarely spring from flat surfaces, but from free edges, and the edges of the hiatus semilunaris lie at a narrow point in the nostrils, partly inclosed by the curtain-like turbinated body in such a manner that drainage becomes easily defective by reason, further, of abnormally narrow nostrils, hypertrophic rhinitis, septal deflection, and excrescences. Muco-purulent secretion, imprisoned and decomposing in the middle meatus and around the middle turbinated body, excites irritation and furnishes a sodden soil most favorable to polyp-growth.

While multiple myxomata not infrequently occasion intranasal expansion, in other cases I have observed an undue narrowness, especially in the superior nasal region, conjoined, perhaps, with abnormally large or incorrectly shaped middle turbinated bodies by which pressure was exerted on contiguous parts. This observation should be received in conjunction with the thought suggested by Hopman,[*] that the primary lesion which leads to the development of mucous polypi is in some impairment of venous escape, resulting in an œdematous condition of the membrane. True vaso-motor paresis also, by favoring œdematous transudation, exerts a like effect.

I am of the opinion, therefore, that the explanation of the so-called myxomatous diathesis will be found in whatever local abnormity or neurological defect may be discovered in individual cases to be the fundamental cause of simple œdema or vaso-motor impairment.

Myxomata are connective-tissue neoplasmata with a maximum of mucin-containing serum and a minimum of embryonic or stellate cell proliferation; therefore, also, whatever favors rhinitis leading to hyperplasia will *predispose* to myxomata, especially when acting in the presence of the conditions enumerated which produce œdema of the upper nasal region. Gravity determines the shape of the tumors when pedunculated, and possibly in their incipiency it favors development on free edges; but the edges of the hiatus semilunaris are not the only points of attachment. Polypi may spring from the bulla ethmoidalis just above or from the middle turbinated body itself, it being remembered that this particular nasal zone—where occur hyperplasia, narrowness, pressure, œdema, and bad drainage—is composed chiefly of edges or projecting irregularities, to some of which the tumors *must* be attached. Then, too, we do observe *sessile* myxomata, or, what is almost identical therewith, myxomatous degeneration of the turbinated bodies. Moreover, gravity can scarcely conduce to the further growth of polypi that are already tightly impacted within the nasal cavities. Altogether, I believe the ætiological effect of gravity to have been somewhat exaggerated.

In view of these ætiological factors, the importance of radical surgical measures was emphasized in the paper referred to, first, for the establishment of a free nasal passage for respiration, drainage, vision, and instrumental manipulation, and to this end the reduction of hypertrophied turbinated structures by the electro-cautery, the removal of septal excrescences by the saw, chisel, or motor drills, correction of septal deflection, and excision of hypertrophied tonsils or adenoids.

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[*] Read before the American Laryngological Association at its thirteenth annual congress.

[*] Bosworth, *Diseases of the Nose and Throat*, i, 392.

Figs. 2, 3, and 4, representing myxomata springing from the left middle meatus complicated by hypertrophy of the turbinated bodies and by septal excrescence (Fig. 4), will render more lucid the principles of treatment thus briefly expressed. But, as pointed out, the real success of the treatment, after having gained access to the polypi, consists in tracing them to their points of attachment and thoroughly cauterizing these so-called roots, if not at the same sitting, then at the next, remembering meanwhile the exact spot. Knowing the hiatus semilunaris to be a favorite point of origin, those polypi which proceed from beneath the middle turbinated body could be followed up by insinuating a fine electrode, slightly curved on the flat, to this point; and those which spring from the superior meatus posteriorly must be reached by a properly curved point-electrode introduced through the mouth and naso-pharynx, always under the best illumination.

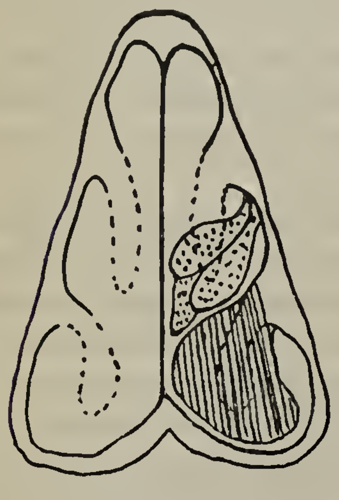

FIG. 2.

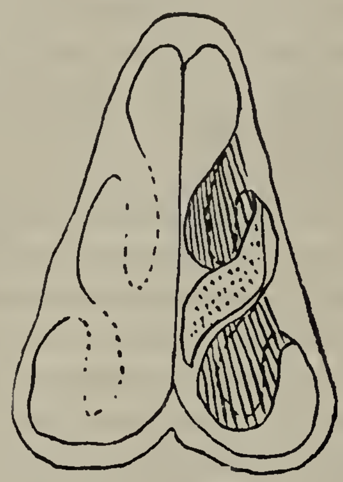

FIG. 3.

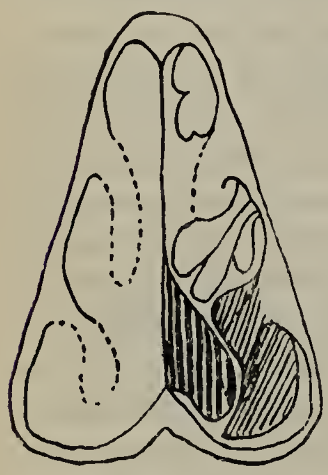

FIG. 4.

It is not meant that any considerable surface area of mucous membrane should be seared over, but that, as nearly as possible, exact spots of origin should be subjected to circumscribed but deep cauterization. Also, when reducing hypertrophy of any of the turbinated bodies, but little surface area need be damaged by our method of making narrow but deep linear cauterizations by means of a point-electrode slightly curved on the flat. By this means, after removal by the snare, supplemented by an occasional use of the forceps, the *majority* of cases can be permanently cured, but a *minority* will still continue unrecovered; and with *these* I did not deal in my former paper.

Additional experience has convinced me that exceptional cases are curable only after *removal* of the *antero-inferior part* of the *middle turbinated body*—certainly a radical procedure and one very proper for discussion by this society.

When the superior nasal zone is very narrow, and the turbinated body in contact with the sæptum and close also to the outer wall, cauterization will only be followed by adhesions, with further obstruction to drainage. Moreover, the space is insufficient through which to insert an electrode to the region of the hiatus semilunaris; also when the bone of the turbinated body is itself enlarged or malformed it presents like impediment to access and treatment.

The removal of the antero-inferior end of the body then suffices to provide space for the passage of instruments to the seat of attachment for eradication of the polypi, to afford a proper drainage channel preventing accumulation of muco-purulent material, and to relieve pressure upon the venous escape and oedema, thus guarding against recurrence.

The turgid, swollen, water-soaked aspect of the membrane rapidly assumes a healthier appearance, and the inferior turbinates, when previously congested, will retract as a result of subsidence of irritation above.

I mean that in certain rarer cases such action seems essential to permanent recovery within reasonable time, and the qualification concerning *duration* of treatment I consider important, for if treatment is permitted to drag along through years, the patience and confidence of the invalid will be exhausted, he will drift from one to another, and remain practically unrelieved, much to his own disadvantage and to our professional discredit.

The size of piece to be abscised one determines by individual circumstances.

The question next arises: Is the operation described justifiable to the end attained? Opinions differ. The middle turbinated body as a process of the ethmoid bone should, of course, be carefully dealt with, as the possibility of septic or other inflammation extending thence to the meninges can not be denied, although personally I am unfamiliar with testimony adequate to establish such an occurrence solely as a result of reasonably skillful operating. A case of meningitis following cauterization of the middle turbinated body was recently reported to the Chicago Medical Society, but it appears that the cauterization was undertaken as a means of relief to symptoms previously pointing toward meningitis.

Morell Mackenzie * cites some cases collected by Lemére in which abscess of the frontal sinus or meningitis followed evulsion of polypi by the old forceps method, by which means it is assumed that bones were fractured; but it is clear that they have no bearing upon the general merits of the operation now under discussion.

Bosworth † writes: "The removal of bone or healthy mucous membrane, I think, is never justifiable." He believes it "perfectly possible to carry the steel-wire loop completely to the base of a growth, no matter how far it extends beneath the middle turbinated bone"; and in reference to cauterization he remarks: "I have never been able to recognize the base from which a polyp has been severed, and therefore think it unwise to subject healthy tissue to injury in the blind attempt to cauterize a region that can not be seen. . . . Furthermore, I do not believe it is necessary, for if we thoroughly extirpate the growths (by the snare) they do not recur."

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* *Diseases of the Nose and Throat*, ii, 367.

† *Diseases of the Nose and Throat*, i, 407.

Much as I regret it, my experience is, of course, at variance with these views, although I am in accord with Bosworth in the belief that unnecessarily frequent, violent, and prolonged operating tends to influence a more fibrous development when recurrence does occur.

Morell Mackenzie * asserts that there are some polyps which from their anatomical situation can not be extirpated unless a portion of a turbinated bone is also taken away, and in his experience no bad effect has ensued from the partial removal of one of these bones.

Lennox Browne † writes: "The main point for the cure of polypus consists not so much in the removal of the growth—nor, indeed, in the all-important complete eradication of the minutest visible polypus—as in the destruction of the soil and bases of their origin." At the same time he indorses Bosworth's dissent from Mackenzie's position regarding removal of bone. One must inquire how in the rarer cases characterized by narrowness, etc., he can gain access to the soil and bases of origin "to sear limited and indicated portions of the mucous membrane with the cautery point."

Cohen ‡ expresses the opinion that the shape of the nasal cavity often renders it impossible to remove all the polyp attachments, and the remaining portions develop anew. Cohen also cites Gross as recommending removal of half the turbinated body.

It is unnecessary for me to relate cases at length; they are not numerous, a few only among the many of this disease which we have had occasion to treat having demanded resort to abscission of the turbinates:

Miss M. had multiple polypi occluding both nares. Very narrow nostrils throughout; hypertrophic rhinitis and vasomotor paresis; extreme discomfort and interference with business usefulness; hay fever every year. The nostrils were cleared by the usual methods, but with constant recurrence during two years. The middle turbinated bodies were crowded and of sodden appearance; drainage defective; the regions of the hiatus semilunaris and middle turbinates were repeatedly sending forth polyp buds. Some of the points of origin could not be reached, or, if reached by insinuating a cautery-point electrode, adhesion followed in spite of care, and the drainage became still more defective.

I ultimately removed the antero-inferior part of each middle turbinated body, with the greatest possible benefit to the patient. A polyp bud still occasionally springs up at long intervals, but, with access to the part, I am confident of a complete cure, while formerly it was discouraging.

Mr. R., a clergyman. Multiple polypi on each side; great disability as regards speaking. Numerous operations during previous years, but always prompt recurrence. Conditions similar to the first case, but a trifle more space in which to work. The same operation, accompanied by other suitable treatment, has seemingly resulted in complete restoration to health. No recurrence for eight months.

I could report still other cases, but the details would be similar—cases in which it was apparently impossible to effect a radical extirpation otherwise, and wherein the disability was so pronounced as, in our opinion, to justify this procedure.

Entirely another class of cases in which I have performed the same operation, sometimes accidentally, more often purposely, includes those in which a polypus of considerable size springs from the antero-inferior part of the middle turbinated body itself.

These are apparently of the kind indicated by authors who say that the removal of the underlying spicule of bone is the most certain method of eradication. The polypus often has *not* a *narrow* pedicle, but quite a broad base, which envelops the sides as well as the lower edge of the turbinated body, the bony base of which seems likewise to have grown a distance into the tumor, whose pedicle it is then difficult to envelop without including in the snare a part of the bone.

Examinations of specimens of this sort, three of which I have preserved and exhibited, show that the bone itself is not intimately associated with the myxomatous structure, but the periosteum does seem to be therewith incorporated, so that, while myxomata can not be said truly to spring from the bone itself, for operative purposes, when they involve its periosteum, it amounts to the same thing. I have not known this species of polypus thus removed to reappear in the same situation.

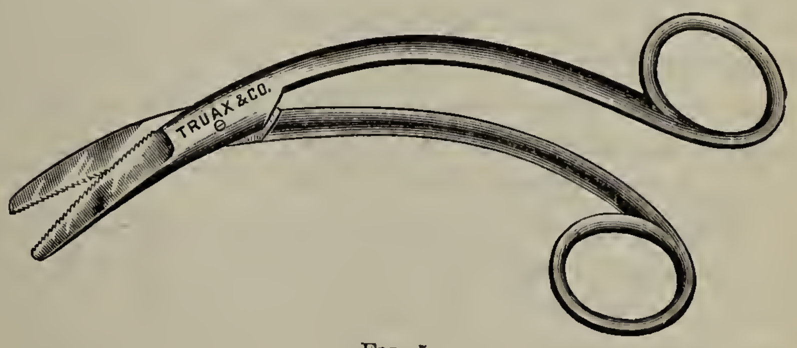

Fig. 5.

Method of operating.—Before this association it is unnecessary to relate in detail the technique of an operation on the middle turbinated body. I consider properly constructed turbinate-bone scissors the easiest and best means of abscission, *provided* space on each side of the body will permit the passage of the blades sufficiently high up—the best means, because a clean cut of the bone is made at the point selected without risk of fracture at other points, as would seem possible by the crunching movement of a snare or the breaking action of forceps.

I have devised for the purpose a pair of turbinate scissors, curved in a manner similar to others of the kind, but smaller, shorter, and with thinner blades, the latter being serrated to prevent slipping (Fig. 5). When one can not manipulate the scissors, the snare will usually effect the purpose. The instrument should also possess the écraseur action, and require but one hand to simultaneously hold and work it, characteristics which are possessed by the Allen snare. When the parts are so crowded as to offer resistance to the passage of a loop, the steel wire should be sufficiently heavy to be not easily turned aside; otherwise the ordinary so-called No. 5 piano-wire is best, being thinner and therefore cutting cleaner.

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* *Diseases of the Throat and Nose*, ii, 369.

† *The Throat and Nose, and their Diseases.* Third edition, p. 605.

‡ *Diseases of the Throat and Nasal Passage.* Second edition, p. 398.

It would seem that the snare, instead of cutting through, might crowd the bone together and fracture it at a point higher than intended, but I have never been able to ascertain that this has actually happened. A more real disadvantage is the liability of the loop to slip and remove *less* than desired. There are times, however, when, by reason of extreme narrowness or crowding of the parts, neither turbinate scissors nor snare can be satisfactorily manipulated, and then I use a small but strong cutting forceps, with sharp, rounded extremities which fit accurately together. By this means the part must be abscised in several pieces, which renders it a more painful and tedious process, but one which is effective and not unbearable.

70 Monroe Street.

ON THE DEFINITION AND THE SCOPE OF ORTHOPÆDIC SURGERY.

*REMARKS ON DR. GIBNEY'S PAPER.**

By NEWTON M. SHAFFER, M. D.

I had begun to think that my remarks on What is Orthopædic Surgery? read before the International Medical Congress held in Berlin, were to receive the most formidable and crushing of all criticisms—viz.: the silence and neglect of my colleagues. A whole year has passed since my paper was read, and no one has been kind enough to take any notice of my attempt to define modern orthopædic surgery. I was therefore much pleased to know that another effort would be made to define orthopædic surgery by my friend Dr. Gibney, whose opinions and views we have all been glad to hear.

While I can not but feel grateful to Dr. Gibney for his kind attempt to clear up any misinterpretation of my position, I feel, so far as our German friends are concerned, that his explanation is unnecessary. Just prior to the reading of my essay before the Orthopædic Section of the Berlin Congress I distributed seventy-five copies of the essay translated into German; and I noticed, as I read, that many of my hearers followed me line by line. There was doubtless considerable confusion on the first day, owing largely to the fact that I read in my native tongue. But whatever doubt there may have existed was set at rest by the appearance of my essay, kindly translated by my friend Dr. F. Beely, of Berlin, in the *Berliner klinische Wochenschrift*,† soon after the adjournment of the congress. I can not understand how any of my English-speaking colleagues, who were present when I read my essay, misunderstood my plainly stated views.

As to the quotation referring to my personal responsibility for the views expressed, I feel that I ought to say that I had the honor of inaugurating the movement which resulted in the recognition of orthopædic surgery by the Berlin Congress; and that, as chairman of the committee, I should have been false to my trust if I had permitted even an inference that the committee as a whole was in any way responsible for the views expressed.

Regarding the number of titles upon the programme of the Orthopædic Section of the Berlin Congress, I find that only twelve of the thirty-five titles announced were upon surgical (operative) subjects; of these twelve, only five or six would be placed in the category of general surgery by my definition.

We have all listened with pleasure to Dr. Gibney's remarks. But he does not, I think, make it clear why orthopædic surgeons should undertake to do the work that the general surgeon is so well equipped to perform. He does not make it clear why orthopædic surgeons should not confine themselves to, strictly speaking, orthopædic work—which is as yet in its infancy of usefulness to humanity, and which has before it a career of great brilliancy.

I think we are all agreed that specialties in medicine are the natural outgrowth of a true progress; and that no specialty ought to succeed which attempts to cover, or which even invades, the well-defined limits of general medicine or general surgery. In short, all specialties in medicine should have a distinct and valid reason for their existence. If we stop to ask how orthopædic surgery became a specialty, we can readily answer that it was due to the undeserved neglect of mechanico-therapy by the entire medical profession. A few earnest and intelligent surgeons have rescued mechanico-therapy from its unenviable position, and have made it what it is to-day. They did it, not by devising new operative procedures for the relief of deformity—the general surgeon did that; but by investigating and studying the mechanical principles involved in the treatment of deformity, and by inventing apparatus to meet the required therapeutical ends. Without the work of these men, the present American Orthopædic Association would have had no existence, and orthopædic surgery as a distinct specialty would scarcely be recognized to-day.

It is universally admitted, I think, that all specialists in medicine should be thoroughly equipped both in medicine and surgery, and there is no reason why one thus equipped should not practice both general medicine and general surgery. It must, however, be apparent that the so-called specialist who does this weakens his own claim to specialism and apologizes for his specialty. This will be true so long as medicine and surgery, generally speaking, are progressive and so long as there are unsolved truths awaiting the special investigator and the special student.

This, it seems to me, is especially true of orthopædic surgery. There is much to be done, much to be learned, in the mechanical treatment of deformities, while the surgical treatment of deformities will receive ample and well-prepared attention from the general surgeon. A brilliant future awaits those who will steadfastly devote themselves to the development of the scarcely taught and the comparatively unknown branch of mechanico-therapy. There are unexplored fields in sight with rich rewards awaiting the patient tiller; and while there is so much to learn, so much to be developed, and so much to be made available for the benefit of suffering humanity in these unexplored fields of mechanico-therapy, some orthopædic surgeons are content to ignore the benefit they could bestow upon humanity by perfecting true orthopædic surgery and are willing to follow more or less in the beaten paths of general surgery. And we will all admit that the general surgeon is fully prepared to perform all the operations for the relief of certain chronic deformities and that he needs no help from the orthopædic surgeon in applying the conventional surgical dressings they require; but we also know that the early training of the general surgeon does not prepare him to apply properly devised apparatus in the more difficult cases of chronic or progressive deformity. It should be the aim of orthopædic surgeons to excel in that which gives orthopædic surgery its existence and makes it, properly interpreted, one of the most distinct and necessary of all the special branches of medicine.

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* Delivered before the American Association at its fifth annual meeting. *Vide* Dr. Gibney's article entitled Orthopædic Surgery; its Definition and Scope, *New York Medical Journal*, November 7, 1891.

† Was ist orthopädische Chirurgie? *Berliner klinische Wochenschrift*, No. 43, 1890.

Orthopædic surgery has had its first trials and has slowly reached a point from which it can look forward to ultimate success. Sooner or later it will, I think, reach a point where its followers will be true orthopædic surgeons.

In the present status of orthopædic surgery the invasion of the field of the general surgeon by the orthopædist can only be justified on the plea of expediency; but, as a matter of principle, it can never be just or wise for orthopædic surgeons to leave the undeveloped fields of true orthopædic science for the well-trodden but perhaps more attractive paths of general surgery. To mingle the two is to endanger both, especially the orthopædic part. There are very few of us who have not witnessed examples which prove this statement.

We may go anywhere in the civilized world and we shall find general surgeons who have been amply educated to perform all the operations of general surgery. The medical colleges and universities of the world are monuments to the brilliant success of general surgery. On the other hand, how many of the cities of the world contain men who have received a thorough training in orthopædic work and methods? A liberal training in our colleges and hospitals does not make an orthopædic surgeon any more than it makes an ophthalmologist or neurologist. Years of post-graduate study and work are necessary to make an accomplished specialist in orthopædic surgery; and when one has mastered the rudiments of the science—and the best of us have only done this—he will even then have to be on his guard or he will be diverted from his plain line of duty by the attractiveness and brilliancy of operative work. The true orthopædic surgeon will desire to extend the benefits of a developed mechanico-therapy to relieve the sufferings and the deformities of the human race; and he will find his time fully taken up in one of the most attractive fields of study in the whole range of medicine. His reward will be ample, for the benefits which will accrue to humanity from a perfected orthopædic science will be second only to the grand results of operative surgery itself; but he who would strive for this goal—of the greatest good to suffering humanity—must necessarily, in the present state of orthopædic surgery, work in new fields. He must devote all his energies and time to his work, and he will scarcely have time—even if he has the inclination—to compete with the general surgeon in the field of operative work.

The pleasure that attends the practice of orthopædic surgery needs only to be stated to be appreciated. As I have remarked elsewhere, orthopædic surgery is an exact science. The orthopædic surgeon is dealing with mathematical and mechanical problems all the time, and the application of the principles of treatment is limited only by the vulnerability of the human tissues and his therapy is regulated by his own hands. If his patience equals his confidence, the orthopædic surgeon can achieve many very brilliant results.

As long as orthopædic surgeons combine general operative surgery with their orthopædic practice, the medical profession will fail to properly recognize their position. This will accrue to the advantage of an uneducated class of instrument-makers, whose efforts to serve the profession are laudable, but whose failures are only to be expected. As long as this uneducated class are relied upon by the profession, humanity will be the sufferer, and the general surgeon will be dissatisfied with his management of cases of chronic deformity requiring special mechanical treatment. The medical profession need educated orthopædic surgeons to whom they can refer patients with chronic deformity requiring special mechanical treatment with confidence; and the orthopædic surgeons, with equal confidence and with a merited self-respect, should refer their operative cases not requiring special orthopædic care after operation to the general surgeon.

By and by a sufficient number of surgeons trained in orthopædic work and methods will exist, and then the profession at large will recognize their position and claims. Then the instrument-maker will be relegated to the position which the pharmacist now occupies—viz.: that of "compounding" the "prescription" of the surgeon.

There is too much false pride among some orthopædic surgeons—and this false pride interferes very materially with the advance of true orthopædic surgery. Some orthopædic surgeons seem to want to be recognized as operative surgeons. They dislike, for example, to have it said: "Oh, yes, Dr. —— is good enough at applying a brace for deformity, but they say he is too timid to excise a joint." The consequence is that Dr. —— wants to prove his ability to perform all the operations of surgery. I have heard remarks like this made of some of our best orthopædic surgeons—I know it has been said of myself. But we must rise above such puerile criticism. The fact that we choose to send our, strictly speaking, operative cases directly to some general hospital or to some general surgeon places the orthopædic surgeon in a secure position; for the difficult cases which he retains and which he is competent to treat are better cared for than they could be by the general surgeon—and we know that the general surgeon is fully equipped to care for the, strictly speaking, operative cases. If we candidly study the element of humanity and progress in our work, it would seem that this would be the best for those whose interests are committed to our care.

But I must not be misinterpreted. The major work of the orthopædic surgeon must lie in the mechanical field. On the other hand, he must be prepared and equipped to operate when his work demands it, and he must keep abreast with current medical thought and practice. He is not to be a mechanic alone. But, as a matter of principle, and a logical sequence of his chosen specialty, the orthopædic surgeon should only operate upon those patients with chronic deformity who ought necessarily to remain under his care after operation. This is where, I think, the operative line should be drawn, for the function of the orthopædic surgeon should be to fill a place not occupied by the general surgeon. This position is one which all orthopædic surgeons can occupy with credit to themselves—and if it is maintained, it will result greatly to the credit of orthopædic surgery and to the benefit of suffering humanity.

I can not but feel flattered in thinking that Dr. Gibney has adopted my definition of orthopædic surgery in every respect except the final and qualifying clause. Something has surely been gained by this discussion, and the day may not be very far distant when modern orthopædic surgery will be clearly defined.

Dr. Gibney has kindly adopted my definition, except the final and qualifying clause. He would have it read as follows: "Orthopædic surgery is that department of surgery which includes the prevention, the mechanical treatment, and the operative treatment of chronic or progressive deformities."

Let us see where this would lead us. It would make the orthopædic surgeon a general surgeon in effect. He would be called upon to trephine for cerebral paralysis, to perform laminectomy for spinal paralysis, to amputate for incurable deformity, to excise diseased joints which do not require mechanical treatment, and to operate for spina bifida, hare-lip, elephantiasis arabica, etc., and in cases requiring plastic surgery, etc.

I respectfully submit that these operations belong to that class which Dr. Gibney calls "the operative procedures that legitimately belong to the general surgeon," to which, he says, "orthopædic surgery lays no claim."

Dr. Gibney's modification of my definition would lead us far from the goal which all orthopædic surgeons should strive to reach.

On the other hand, it would appear that the definition submitted at the Berlin Congress draws a very distinct line, founded on the real traditions of modern orthopædic surgery. It places orthopædic surgery in a clearly defined position, which makes it incumbent upon its followers to operate in those conditions only which clearly demand special orthopædic care.

In order to be explicit, I again submit my definition of orthopædic surgery as read before the Berlin Congress. It is as follows: "Orthopædic surgery is that department of surgery which includes the prevention, the mechanical treatment, and the operative treatment of chronic or progressive deformities, *for the proper treatment of which special forms of apparatus or special mechanical dressings are necessary.*"

ASEPSIS IN INTRAPERITONEAL SURGERY.*

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I WILL not discuss the broad question of asepsis *versus* antisepsis by the use of chemical solutions in its application to general surgery, but, if the proper precautions as regards cleanliness in every detail before and during an operation are observed, we need no antiseptic germicides in intraperitoneal surgery. If solutions of sublimate, carbolic acid, etc., are brought in contact with healthy peritonæum, their action is harmful, and if they do not cause immediate bad results they will cause subsequent trouble by so irritating the membrane as to result in few or many adhesions of the abdominal and pelvic viscera. They may leave the patient as much of an invalid as before the laparotomy, or more. Nor will I condemn the use of chemical solutions for the purpose of sterilizing the operator, assistants, nurses, or patient, or the room, instruments, sutures, dressings, or sponges, if used before the operation is begun; but they should be removed from everything that is brought in contact with the peritonæum. Unless everything is made practically clean, independent of the germicide, it will not make it aseptic. It is too often true that operators who are loudest in advocacy of germicide solutions are the least cleanly, and I have known them to forget to wash their hands before beginning an operation or before examining a woman in labor. They wet the walls of the room and the hands that have not been cleansed in sublimate solutions, use carbolic spray, put dirty instruments, sponges, sutures, and dressings into dirty vessels filled with unclean water, and expect the antiseptic to make all aseptic. Just here lies a great objection to the general use of chemical germicides, and women have died of septic infection because of reliance upon such means.

There are relatively few men who know how to be surgically clean in every detail connected with intraperitoneal surgery, and if the time and labor that have been devoted to teaching the medical profession how to use antiseptic germicides had been directed to teaching the value of and means of accomplishing surgical cleanliness, septic peritonitis following laparotomy would be comparatively infrequent. Of course the foregoing does not apply to all men who use chemical antiseptics, for some of them are the most cleanly I have ever seen operate; but I believe they would get as good or better results if they omitted the antiseptics. The peritonæum is usually infected by contact and the danger of atmospheric infection is practically *nil*, as has been shown by the excellent results in laparotomies done in large and crowded amphitheatres.

The following order may be observed in describing the

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* Read before the American Association of Obstetricians and Gynæcologists, in the Academy of Medicine, New York, May 18, 1891.

means of making and keeping everything aseptic in abdominal and pelvic surgery:

1. The operating room and the room in which the patient is to remain during convalescence.
2. The patient.
3. The operator and all assistants.
4. The kind of water to use.
5. (*a*) Instruments; (*b*) sutures and ligatures; (*c*) sponges; (*d*) dressings and towels.
6. Irrigation.
7. Drainage.

The operating room should be so constructed that the floor, walls, and furniture may be washed regularly and kept clean. If the operation is done in a private house it is well to remove the carpet and curtains some days before and wash everything in or about the room, but do not attempt to disturb the dust by brushing on the day the laparotomy is to be done. If dirt has then accumulated that must be removed, it should be done by wiping or washing with a towel, and this must also be done if we operate in emergency cases where we have no time to make extensive arrangements. I doubt if there is any advantage in using the spray or burning sulphur unless the room has been occupied by a person with some infectious disease. Asepsis is more easily accomplished in well-regulated private or public hospitals or infirmaries; in private houses septic matter may more readily be introduced unless the operator or an experienced nurse rigorously superintends everything before and during the operation. But good results may be obtained in uncleanly rooms and surroundings if the wound and the peritonæum are protected from contact with anything septic. This, however, should not be an excuse for operating without preparing the room, for the dangers of infection are multiplied many times; the hands, sponges, towels, etc., may unconsciously come in contact with poisonous matter, and it requires unremitting watchfulness to prevent it. This danger is practically removed where we take the proper precautions when we have time to do so before operating. The room in which the patient is to remain after the operation should be made clean, as should also the mattress and bed covering; this is especially necessary where the drainage-tube is used.

In operating rooms at hospitals or infirmaries the operating and instrument tables are more easily kept clean if they have plate-glass covers. The instrument trays and pans for sponges and dressings should be white china or white porcelain lined, so that we may readily see if they are unclean.

The patient should be given one or more hot baths with soap and brush before the operation, and every part of the body, including the hairs on the head, under the arms, and over the vulva, should be carefully cleansed. The pubes should be shaved, and it is well to scrape away with the razor the epidermal scales from the anterior surface of the abdominal wall. Before making the abdominal incision the abdomen should again be washed and wiped dry with a clean towel. A hot enema and a copious vaginal injection should be given before the operation. Dry, sterilized towels should be placed over the pubes and upper part and sides of the abdomen, over which there should be spread a large piece of several thicknesses of dry, sterilized gauze with an opening cut for some inches over the point where the incision into the cavity is to be made. This prevents the hands, instruments, or sponges coming in contact with septic matter about the clothing or the operating table.

The same care in preparing for an operation that is required of the operator should also be enjoined upon the assistants and the nurses; otherwise it is impossible to know if septic matter has been introduced. Visitors should not be permitted to come near the patient or anything that is to be used in the operation, nor should they touch the hands of any one who is to assist in any capacity in the operation. The operator should prepare himself as carefully as he has had the patient prepared, and should put on clean linen before each operation. His nails should be closely trimmed and scraped, and *just before* he begins an operation his hands and arms should again be carefully washed in hot water with soap and brush. He should then put on a clean white apron reaching from the neck to below the knees and extending entirely around the body, so as to prevent the hands coming in contact with his clothing. He should have a pan of hot sterilized water on his instrument table to dip his hands into when soiled with blood or other matter.

All water used in the operation should be sterilized by boiling not less than thirty minutes, and if we can not get water that is relatively clear and clean, it should be distilled or filtered through a Pasteur filter before it is boiled. The vessels in which the water is boiled should be washed in hot water with soap and should be used for no other purpose. The water for the sponges and irrigation should be boiled some hours before the operation, so that it gets cool enough to use, but the water to be put into the instrument and suture trays and the pan for the irrigation and drainage-tubes and needles should be boiling when the operation is begun.

The instruments and needles should be washed with great care in hot water with sapolio. It removes the oil from new instruments, and the blood or other secretions from instruments that have been used, better than any soap I have tried. The hairs of the brush should be pushed into the irregularities and holes in the instruments, and through the eyes of the needles; otherwise all the dirt will not be removed. Instruments should be washed after being used before the blood has hardened on them, and should be wrapped in a sterilized towel until they are needed. When any of the plating is worn off they should be replated. They should be kept in boiling water with a little carbonate of sodium, to prevent rust, a few minutes immediately before using.

The best suture or ligature for general use, and it will serve nearly all purposes in intraperitoneal surgery, is the Chinese hard twist silk of different sizes. It should be selected from unbroken packages and never handled with hands that have not been washed; nor should it ever come in contact with anything not clean. This suture may be sterilized in several ways, but the most reliable method is to wrap three sizes on three separate small glass spools and put them in a test tube and stopper it with a piece of absorbent cotton. This should be kept for an hour for three consecutive days in a Koch's or some approved sterilizer at a heat of 212° F. Each tube holds enough silk for a laparotomy, and may be kept indefinitely in an aseptic condition if the cotton is not removed. Or the silk may be sterilized on large glass spools which may immediately be put on reels in glass suture boxes and kept covered with alcohol. These sutures may, however, be made practically sterile by putting them in an iron porcelain-lined pan of boiling water and keep the water boiling for thirty minutes before and during the operation. The glass drainage and the irrigation tubes and the needles may be kept in the same pan. Silk-worm gut may be carefully washed and made sterile by boiling. This may be done during the operation; or, if it is done previously, they should be put in long glass sterilized tubes and absorbent cotton tightly introduced into the ends, or they may be kept in hermetically sealed glass jars or in alcohol. Silver wire should be cut into pieces twelve inches long, then washed and made bright with sapolio, and when boiled kept also in glass tubes, or it may be washed and boiled when we want to use it. It may also be sterilized and kept on large spools in the glass suture box filled with alcohol. I will not speak of the preparation of the catgut or the kangaroo tendon.

Soft and well-shaped sponges should be selected and prepared after the following fashion: They should be hammered on a marble slab with a wooden mallet as long as any sand, lime, or dirt can be gotten out of them. They should then be washed in cold water and put for twelve hours in water made disagreeably sour with hydrochloric acid. The acid is washed out of the sponges, and when they are dry they are again hammered with the mallet to see if any more sand or lime can be got out of them. They are now carefully washed in cold water and kept for six hours in a mixture of sulphurous acid one part and water five parts. This is washed out in clean water and the sponges wrung dry and immediately put into a large glass-stoppered jar or bottle filled with alcohol. Sponges that have been used may again be made clean if they have not come in contact with septic pus. Immediately after the operation have them washed and then put for twelve hours in a strong solution of carbonate of sodium. This will dissolve all organic matter so that the sponges will be relatively clean when the sodium is washed out of them. They are then put into the sulphurous acid and water as above described and kept in alcohol. There are other ways of preparing sponges, but this is the simplest and the most perfect. The sponges should be prepared by the operator or under his immediate supervision, otherwise the process may be imperfectly observed.

It is best for each operator to prepare his own gauze. It can be purchased in rolls of twenty-five to one hundred yards, free of oil, and ready to be sterilized. This is best done by putting it in loose folds into a sterilizer for an hour for one or more days. It may then be put into aseptic glass jars with ground stoppers, or into small jars with glass tops that fit so tightly upon gum bands that air can not be admitted. Enough may be put into one jar for a laparotomy, and it will remain sterile. If any antiseptic is preferred it may be used on the gauze when preparing for an operation, but, as gauze properly sterilized is free of pathogenic germs, why use the antiseptic? It can not make it more aseptic. If there is any doubt as to perfect sterilization the germicide may be used.

If it is not convenient to sterilize the gauze as above described, it may be made practically sterile by boiling it for thirty minutes before and during an operation; but dry gauze should, if possible, be used, especially over the abdomen and the wound.

If towels are carefully washed and boiled in clean water for thirty minutes, they are usually sufficiently aseptic if they have not been used except in the operating room. They may be sterilized as carefully as the gauze; but this is a troublesome process and is probably not necessary.

In suturing the abdominal wound the edges should be evenly coaptated, but if the sutures are tied too tightly, stitch abscesses will follow in the practice of the cleanest operator, because it furnishes necrosed tissue in which pathogenic germs may develop. The abdominal wall should be made clean and dry before the dressings are applied and well dusted with boric acid, an excellent means to keep the wound dry. The several layers of gauze and the thick layer of absorbent cotton should be strapped tightly to the abdomen by three-inch-wide gum adhesive plaster. If the glass tube is used, the dressings should be perfectly fitted around it.

If the peritonæum has become soiled with blood, pus, or the contents of cysts, the cavity should be thoroughly irrigated with water at a temperature of from 100° to 110° F. This is best done with a long glass tube, with holes at the end and on the sides, attached to a gum hose. An iron, granite, or glass funnel is introduced into the other end of the hose, and the water, poured from a pitcher, is forced into all parts of the peritoneal cavity by hydraulic pressure.

Suprapubic drainage with the glass tube is the method usually adopted to drain the peritoneal cavity. It is seldom possible to make the peritonæum perfectly aseptic, but if it is kept relatively dry, the condition favorable to the growth of pathogenic germs has been removed and they are not so readily propagated in numbers sufficient to cause infection. Streptococci may remain, but we remove the soil on which they live. If the tube is carefully placed at the bottom of Douglas's pouch it will usually drain the secretions, but it will not always do so. I have had a case where the tube was placed at the bottom of the retro-uterine pouch and did not drain more than a little for sixteen hours. When it was withdrawn two inches, it rapidly filled and a pint of liquid was removed.

To prevent complications of this sort I have had specially manufactured tubes with fine holes in the side, extending within from two to three inches of the mouth. The tube should be light, never exceeding a half-inch in diameter, and long enough to reach to the deepest part of the pelvis. The several layers of sterilized gauze and cotton fitted closely around the tube should be protected by gum dam and a clean piece of cotton kept over the mouth of the tube. The liquid should be removed from the tube by suction with a syringe. This should be done as often as every ten to twenty minutes at first, but as the secretions become less the interval may be made longer. The syringe should be made clean and kept so by washing immediately before and after using it. We should not attempt to remove the liquid by the introduction into the tube of gauze or wick, but gauze drainage may be of value if the gauze is introduced around the tube in cases where the bowel has been opened and can not be closed, or where it is necessary to drain from a large abscess cavity. Drainage is indicated—

1. To diagnosticate internal hæmorrhage in time to stop bleeding by the injection of a hæmostatic or by reopening the cavity before fatal shock.

2. To prevent hæmorrhage by keeping the cavity dry and allowing the vessels to contract and the blood to coagulate.

3. Where there are extensive adhesions or continued oozing of blood or transudation of serum; it is indicated in old and feeble people if either of the above-mentioned conditions are present, if only to a limited degree.

4. When in doubt as to the necessity for drainage it is best to use it.

5. Where the peritonæum has been soiled with pus or other matter that is probably septic, or where portions of the cyst wall or other structures that may become devitalized are left in the cavity.

The tube should be cared for by a specially trained nurse who knows how to reduce the dangers of tube infection to a minimum. Clean towels should be spread over the abdomen and closely fitted around the tube under the gum dam before the cotton is removed from over the mouth, and the hands should be carefully washed before using the syringe.

THE MICROBIC ORIGIN OF SCARLET FEVER.

By JOHN FORD BARBOUR, M. A., M. D.,
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Is scarlet fever of microbic origin? While the argument from the analogy of this disease to others the microbic origin of which is well established is sufficient to convince us of this, and while there are certain clinical facts which can but be explained upon this hypothesis, yet it must be admitted that no one has ever demonstrated this bacteriologically, or isolated the specific micro-organism of scarlet fever. Various attempts in this direction have been made. Before the era of microbiology Hallier described a fungous growth—the *Tilletia scarlatina*—to which he benevolently ascribed specific properties. Coze and Feltz, in 1872, gave a description of a bacterium; but here again there was no effort at obtaining a pure culture.

In the *Medical Times and Gazette* for January, 1882, there is an account of the discovery of the supposed germ of scarlet fever by Frederic E. Klund, of Sweden. This observer states that scarlet fever is almost constantly present in the island of Skeppsholm. In the urine of scarlatinous patients he found immense numbers of disc-shaped, round or oval corpuscles, much smaller than a red blood-cell, which displayed rotary movements, multiplied by fission, and never adhered in moniliform chains. He also professes to have found them in large numbers in the soil and underground water of Skeppsholm and in barracks and other situations where scarlet fever had broken out. To this germ he gave the name *Plax scindens.*

It will readily be seen that the evidence for its specificity is simply *nil.* No other observer, I believe, has found it.

Cooke and other authors have described various bacilli and streptococci; but the proof that any of them is pathogenic of scarlet fever is lacking.

Very interesting in this connection are the investigations brought about by the Hendon epidemic, for the account of which I am indebted to a recent lecture by M. Sevestre, of Paris. (*Le Progrès médical*, November 29, 1890.)

On December 14, 1885, the Local Government Board received notice of the appearance of a very severe epidemic of scarlet fever at St. Marylebone in a region where the inhabitants obtained their supply of milk from the farm of Hendon. On the 15th of November the proprietor of this farm had purchased three new cows in the county of Derby. According to custom, they were kept under observation in quarantine for fifteen days. Then, as they appeared to be sound, they were transferred to the common stable. Several days afterward scarlet fever developed in a certain number of people receiving the milk from these cows, while others of that neighborhood, getting milk from another stable, remained exempt. The epidemic manifested a marked recrudescence on the 4th of December, at the same time that signs of disease appeared in four cows which had sojourned with the first three at the place of quarantine. The necessity for serious measures was then felt, and the milk from the diseased cattle was thrown away; but the inhabitants of a neighboring village—Child's Hill—succeeded in procuring it on December 16th; four days afterward the disease appeared among them.

An examination of the diseased cows showed that they had upon the dugs ulcerations which had been preceded by vesicles. A cutaneous eruption then appeared, causing a loss of hair in different parts of the body.

Power (*Report of the Medical Officer of the Local Government Board*, 1885–'86, No. 8), finding that only the consumers of milk from these cows were affected with scarlet fever, concluded that here was the origin of the disease.

Klein, to whom the bacteriological investigations were intrusted, isolated from the ulcerations a streptococcus which, inoculated in calves, produced a similar disease with presence of the microbe in the viscera. Klein discovered the same streptococcus in the blood and the viscera of scarlatinous patients, and also in the body of a monkey which, living among these patients, had drank of the suspected milk and had died after a short illness. With these data he did not hesitate to affirm that the microbe was that of scarlet fever.

To look at the matter superficially, this statement would seem to be well founded; but, closely examined, Klein had demonstrated neither the scarlatinous nature of the bovine disease nor the specificity of the microbe found in man. (*Vide Proceedings of the Royal Society*, London, xlii, 1887.)

These investigations were resumed by Edington (*British Medical Journal*, June 11, 1887). He found in the blood, in the viscera, and in the skin eight micro-organisms; among these, two of special importance—the *Bacillus scarlatinæ* and the *Diplococcus scarlatinæ sanguinis.* But, strange to say, the *Bacillus scarlatinæ* is found in the blood during the first few days only, and, on the other hand, it is present in the desquamated scales after the third week; never before. In various ways this bacillus differs from the others hitherto described, but it has never been demonstrated to be the microbe of scarlet fever. The author experimented with inoculations. These produced in the rabbit a cutaneous erythema, accompanied by fever and followed by desquamation. But is this sufficient to characterize scarlet fever? Certainly not. We know how much certain exanthems in the human being resemble scarlet fever, while they are entirely distinct from it. Such, for example, is the case of Savard, where a wounded man was affected with a lymphangeitis extending over nearly the entire body, simulating exactly a scarlatinal eruption and followed by desquamation. The writer once saw a case of varicella where, after an imprudence in diet, the entire surface of the body from the waist up became of the color of a boiled lobster, and this was followed by desquamation exactly like that of scarlet fever. The general nature of the eruption, then, and desquamation, are not sufficient evidence of the presence of scarlet fever.

Is it necessary, then, to inoculate a human being with these microbes in order to prove their specificity? Certainly we can not go this far, though Edington injected an adult with a dilution of a culture of his bacillus without any result. In order to demonstrate the bovine origin of the disease it is necessary to find at least one case of direct transmission from the animal to man; but this has never happened, so far as we know.

However, the facts concerning the Hendon epidemic are undeniable. Numerous cases of scarlet fever developed in those persons who took the milk from a certain stable, while others who took milk from another locality, but whose surroundings were the same, remained exempt.

Are these facts capable of any other interpretation than that given? The whole matter seems to be very satisfactorily explained by an excellent and interesting report made by Thin. (British Medical Association, Dublin, 1887.)

Thin, first of all, established a very important fact—namely, that the dealer who furnished the cows at Hendon had also sold to other proprietors. These cows, like those at Hendon, had fallen sick after a few days, and a very close inquiry established the fact that among the persons, numbering over a thousand, who drank the milk from these cows, not one had scarlet fever; as a set-off, however, among the men who attended to these cows many were affected with lymphangeitis or erysipelas.

Crookshank likewise, in an epidemic of the same nature, which affected a great many cows, could not discover a single case of scarlatina among some fifteen hundred or two thousand persons who made use of the milk from these cows.

From these facts it seems legitimate to conclude, with Thin, that, if the milk from Hendon was able to propagate scarlet fever, the germ of the disease did not come from the cows.

Thin did not stop here, and a more thorough inquest revealed the following facts: In the course of his visits to Hendon he noticed some laundries established near there, in a district of Child's Hill, the Mead, and he learned that in this region, before the Hendon epidemic, several cases of scarlet fever had been observed (one case on September 4th and two cases on October 10th at Child's Hill; two cases in November at the Mead).

There is nothing remarkable about this, since the laundries received a great deal of linen from London, where scarlatina is endemic. But notice this coincidence: two men employed at Hendon as milkers lived at the Mead and went many times a day from one to the other of these two points, separated only by a distance of half a mile. It is not established beyond doubt that they carried the scarlet fever to Hendon, but it is at least very admissible that they might have done so, and it is easy to comprehend how they might have contaminated the milk in the various manipulations to which they subjected it, especially in the process of stirring the milk with the naked hand in order to mix in with it a substance known as the color and designed to preserve it.

To sum up, if milk can serve as a vehicle for the contagion of scarlet fever (and this fact is generally admitted in England), it is by no means established that scarlet fever may be of bovine origin.

The nature of the disease affecting the cows at Hendon is undetermined. According to Cameron, it was a new disease; Crookshank considers it an eruption of cow-pox, in which the lacerated vesicles were converted into ulcerations and served as a port of entry for a secondary infection. In any case, it seems impossible to admit that a cow may have scarlet fever, though Spinola has reported a case in a horse and Heim one in a dog, and Letheby saw it in swine and Keane in young cattle. Williams, a prominent veterinary surgeon in Great Britain, admits the occurrence of this disease in animals.

As to the microbes described by Klein and by Edington, that of Klein, according to Crookshank, seems to be the streptococcus of inflammation, while that of Edington, according to Smith, belongs to the same group as the *Bacillus subtilis.*

What renders this question of microbiology peculiarly difficult is the presence in the economy of various pathogenic micro-organisms which penetrate during or after the scarlet fever, and constitute, separately or together, the phenomena of the secondary infections. A consideration of this very interesting question would unduly lengthen this paper. I will limit myself to a few remarks.

In scarlet fever, as M. Sevestre states, all the conditions for easy and prompt penetration by microbes are united: the mucous membrane has lost its epithelium, is tumid; the lymphatic spaces are distended; the crypts of the tonsils are filled with exudates; the ganglia are infiltrated from the start.

These secondary infections serve to explain certain obscure diseases which have been identified with scarlet fever; these are puerperal scarlatina and surgical scarlatina.

Finally, these investigations serve to emphasize the extreme care necessary in all bacteriological investigations. Thanks to the labors of Pasteur and Koch, these methods of study have reached a high degree of perfection, and we are just now beginning to put a sickle into this rich harvest of the near future.

A CASE OF DISAPPEARANCE OF SUGAR FROM THE URINE.

By C. G. AM ENDE, M. D.

Mrs. K., aged forty-two, mother of six children, menstruation yet regular but scantier, weight one hundred and twenty-one pounds, of good muscular development, no obesity, face flushed, was for the first time informed that she had diabetes about three years ago by Dr. ——, to whom she applied for treatment of lacerated cervix with consequences, but refused operation.

In the summer of 1891 the patient came complaining of severe gastric and neuralgic disturbances. Upon examination of her urine on the occasion of her next call, Fehling's solution caused a precipitate immediately upon its addition to the yet cold urine. The specimen brought contained considerable albumin, and after a few days a copious sediment of triple phosphates, some uric acid, a quantity of pus-cells and *Bacillus termo*, very few epithelial cells, the majority from the bladder, but on one slide two cohering quadrangular cells with nodules similar to the tubular; no casts. Micturition frequent, slightly painful; the right kidney swollen and painful to pressure. No urine drawn directly from the bladder. Besides intra-uterine, the treatment comprised galvanization, strict diet, bismuth, with pepsin and pancreatin, bromide of sodium, and atropine.

On October 4th no sugar could be detected; there was also a decrease of albumin. Doubting the Fehling's solution, which was over a year old, a fresh one was prepared during the week.

October 11th.—Uric acid; again no precipitate. Doubting the fresh Fehling's solution, the juice of a grape was added to the yet hot mixture of urine and Fehling's solution, with immediate discoloration, etc., following. Albumin reduced to faint cloudiness upon boiling with nitric acid.

18th.—Uric acid. No sugar, no albumin, kidney not painful, but quite an increase in phosphates. Specific gravity had risen to 1·024 from 1·015 on October 11th. It remains to be seen whether this rise depends on a limited allowance of bread since October 11th, or a transient exaggeration of diffused neuralgias, noticed, by the way, on two other patients with hysteric affections on Saturday.

The patient reported improvement in sleep since the beginning of the month, also increasing capability for housework. Except for a small allowance of bread, rigid treatment is continuing.

The New York Post-graduate Medical School.—Mrs. C. P. Huntington has given the directors of the Post-graduate Medical School $2,000, a sum sufficient to defray the expenses of the Midwifery Department for a year.

THE
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THE TROUT PARASITE OF YELLOWSTONE PARK: ITS RESEMBLANCE TO TÆNIA SOLIUM.

The lake trout in Yellowstone Park are infested with worms, concerning which an interesting paragraph appears in the last annual report of Secretary Noble, of the Interior Department. The waters of the Yellowstone region were visited recently by Professor Edwin Linton, who, in conjunction with Professor S. A. Forbes, has reported informally concerning the probable nature of the trout parasite. These investigators believe that the parasite will be found to be a larval, or immature and non-sexual, form of animal life, resembling the "measles" stage of *Tænia solium* in the swine. In other words, this trout parasite is an example of that order of worms which complete the cycle of their life in two different animals. Having this hypothesis in view, Professor Linton began a search for some form of animal which by feeding upon the trout in a raw condition would be likely to become the host of a sexually mature intestinal worm corresponding to the cystic and larval stage observed in the trout. He examined a number of the fish-eating birds occurring in the vicinity of the Yellowstone Lake, and finally hit upon the pelican as the probable final host in this alternation of generation. The pelican was found to have an intestinal parasite which had eggs and which appeared to belong to the same genus as the form in the trout. Collateral proof was obtained by opening the stomachs of some of these birds and finding therein ingesta of trout. These birds, four in number, were shot at Molly Island, in the southerly part of the lake, a favorite breeding-place to which the birds resort in great numbers. The pelican is, moreover, the only fish-eating bird that occurs on the lake in large numbers. It is understood that this bird consumes the fish of every description that happens to be left dead on the shores of the lake. The worm-infested trout is believed to be confined to a very limited and well-defined region of the waters. Mr. Linton's research was conducted with only an imperfect supply of appliances, and he expects to make a more careful examination of the materials he was able to collect and bring home.

Appropriate to this item is the fact that it was reported some months since that the trout of Loch Katrine, in Scotland, were infested with the tape-worm parasite or larva, and a certain amount of "scare" was created in the district which takes its drinking-water from that Loch, lest the citizens should serve as the unwilling host for maturing the incomplete tænia, and lest an "epidemic" of tape-worm might occur. Our impression is that this anxiety was set at rest by showing, as some of the investigators had the means of doing, that tænial disease happened to be less frequent among the city folk supplied from the

Loch than among the country residents who had their independent water supplies. And, further, the thought suggests itself that the parasite may not have been the *Tænia solium* after all, although resembling it, and it may have been perchance the same animal, whose life-history Mr. Linton has partially set forth in the *fontes et fauna* of our far West.

One peculiarity of the Yellowstone Lake trout not mentioned above is that the larval parasite may occur in the same fish of very different sizes, from that of a small cyst not larger than a small-sized shot, to that of larvæ that grow in the muscular tissue to be several inches in length.

MINOR PARAGRAPHS.

BROMIDE OF ETHYLINE IN EPILEPSY.

How to get the best possible therapeutic result out of the bromides in the treatment of epilepsy, and to avoid bromism and many of the unpleasant effects of large doses of these drugs, has been the constant study of the physician ever since the bromides were introduced and became known to be the only remedy to be depended upon in this disease. Dr. J. Donath, in the *Therapeutische Monatshefte* for June, 1891, says that he has found such a combination in bromide of ethyline. He has used the remedy in a number of cases and has found the therapeutic result very satisfactory. In attacks of *petit mal* the beneficial effects were most marked, the seizures becoming less frequent, shorter, and milder. In some cases the only evidence of a recurrence of the attacks was a slight shivering without loss of consciousness. A further good effect of the drug was seen in the absence of the usual stupid condition following a seizure. Many patients have so far recovered mental and moral tone after the use of bromide of ethyline as to encourage them to engage in some occupation. The author understands that it is early to make positive statements as to the ultimate results, but his experience so far leads him to suggest a liberal trial of the drug. Bromide of ethyline is a brownish fluid, with a pungent odor similar to that of chloroform and a sweetish taste. It is insoluble in water, but mixes freely with rectified spirits and fixed oils. The remedy is employed in the form of an emulsion containing five per cent. of the bromide. To adults are given thirty drops, in half a glass of sweetened water or milk, three times a day. Every third day the dose is increased ten drops, until seventy drops at a dose are reached. For children from the age of eight to ten years, ten to twenty drops twice or three times daily are given in the same manner as for the adult. It can also be administered in capsules, three drops in each, from two to four capsules daily. Subcutaneous injections of the emulsion can be given, in this way avoiding any irritation of the stomach whatever. Finally, the author advises early use of the remedy, and states that in his cases he has found that the younger the individual and the slighter the attacks the more prompt are the good results.

FENESTRATED TAPE-WORMS.

In the *Centrlblatt für Bakteriologie und Parasitenkunde*, 1891, x, 5, Dr. Analdo Maggiora describes a case of fenestrated *Tænia mediocanellata (saginata)*, and gives a short historical review of the cases in which similarly deformed tape-worms have been found. He agrees with Danysz that this deformity is due to a disease of the worm in the course of which small points of degeneration arise immediately under the cuticle which correspond to the small white flecks seen on the segments otherwise apparently normal. This degeneration would destroy the cuticle of that portion, and the contents of the intestine of the host would then have access to the tape-worm's tissues and cause a further degeneration. This is practically the view of Rudolph Leuckart, and is opposed to R. Blanchard's view, which is that the rupture is caused by an over-full uterus. L. G. Neuman recently described before the *Société d'histoire naturelle de Toulouse* several similar cases of degeneration in *Tænia cucumerina* of the dog in which the degeneration started from punctures of the cuticle caused by the hooks of other worms of the same species in the intestine.

ST. GILES'S HOSPITAL, BROOKLYN.

A HOME for crippled children has been established at No. 422 Degraw Street, Brooklyn, under the auspices of the Episcopal Church, beginning with accommodations for twelve patients. It was opened with religious exercises on October 19th. Five patients were then on the roll. The full name of the institution is "the Home and Hospital of St. Giles the Cripple."

EXAMINATIONS BY THE MEDICAL BOARD OF NEW YORK.

THE Attorney-General of New York has given a ruling of some importance to foreign graduates. He interprets the law to require that all physicians having foreign diplomas only, and desiring to practice in the State, must undergo an examination by the State medical board before a license can be issued.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 10, 1891:

DISEASES.	Week ending Nov. 3.		Week ending Nov. 10.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	51	8	38	18
Scarlet fever	71	12	99	10
Cerebro-spinal meningitis	2	1	3	1
Measles	35	1	50	2
Diphtheria	92	28	127	52
Small-pox	0	0	0	0
Erysipelas	1	0	0	0
Varicella	4	0	0	0
Pertussis	3	3	0	1
Croup	0	0	0	33

The Medical Society of the State of New York.—The next meeting will be held at Albany on February 2, 3, and 4, 1892. Dr. Seneca D. Powell, of New York, Dr. James D. Spencer, of Watertown, and Dr. Franklin Townsend, of Albany, have been appointed the business committee. Any communications regarding papers or any matter pertaining to the business of the society which should properly come before the business committee should be addressed to Dr. Seneca D. Powell, No. 12 West Fortieth Street, New York.

The Obstetrical Recorder is the name of a handy device in the shape of a pad of blanks for recording the histories of obstetrical cases which is issued by the New York Pharmacal Association.

Change of Address.—Dr. A. F. A. King, to No. 1315 Massachusetts Avenue, N. W., Washington, D. C.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 25 to November 7, 1891:*

MAUS, LOUIS M., Captain and Assistant Surgeon, is relieved from duty at Whipple Barracks, Arizona, and ordered to Fort Apache, Arizona, for duty.

RICHARD, CHARLES, Captain and Assistant Surgeon, is relieved from duty at Fort Logan, Colorado, and will report in person to the commandant of the Military Prison, Fort Leavenworth, Kansas, for duty.

Ball, Robert R., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, with permission to apply for an extension of one month.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending November 7, 1891:*

Simons, Manly H., Surgeon. Ordered to the U. S. Steamer Mohican.

DuBois, Frank, Medical Inspector. Ordered to the U. S. Steamer Philadelphia.

Woolverton, T., Medical Inspector. Detached from the U. S. Steamer Philadelphia and ordered before the Retiring Board.

Blackwood, N. J., Assistant Surgeon. Detached from the U. S. Steamer Newark and ordered to the Navy Yard, League Island, Pa.

Brownell, C. De W., Assistant Surgeon. Detached from the Navy Yard, League Island, and ordered to the U. S. Steamer Newark.

Leach, Philip, Passed Assistant Surgeon. Detached from the Naval Academy and ordered to the U. S. Steamer Monocacy.

Page, John E., Assistant Surgeon. Detached from the U. S. Receiving-ship Independence and ordered to the U. S. Steamer Iroquois.

Field, James G., Assistant Surgeon. Detached from the Bureau of Medicine and Surgery and placed on waiting orders.

Society Meetings for the Coming Week:

Monday, *November 16th:* New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otology); Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *November 17th:* New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Societies of the Counties of Kings and Westchester, N. Y.; Ogdensburgh, N. Y., Medical Association; Baltimore Academy of Medicine.

Wednesday, *November 18th:* New York Academy of Medicine (Section in Public Health and Hygiene); Northwestern Medical and Surgical Society of New York (private); Harlem Medical Association of the City of New York; Medico-legal Society; New York Society for the Relief of Widows and Orphans of Medical Men (annual); New Jersey Academy of Medicine (Newark).

Thursday, *November 19th:* Tri-State Medical Association of Tennessee, Arkansas, and Mississippi (first day—Memphis); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

Friday, *November 20th:* Tri-State Medical Association of Tennessee, Arkansas, and Mississippi (second day); New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

Saturday, *November 21st:* Clinical Society of the New York Post-graduate Medical School and Hospital.

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Proceedings of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Sixth Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

The President, Dr. William Pepper, of Philadelphia, in the Chair.

(*Continued from page 381.*)

Diseases of the Kidney popularly called "Bright's Disease."—Dr. Francis Delafield, of New York, read a paper on this subject. He believed that the time had fully come to abandon the idea that there was such a disease as Bright's disease, and to cease from the attempt to describe varieties of a disease that did not exist. When we had divested our minds of this tradition we could begin to study the diseases of the kidneys and to try to classify them. There seemed to be three ways in which we could classify kidney diseases: According to their causes; according to the part of the kidney involved; or according to the nature of the morbid process. A classification according to the nature of the morbid process was altogether the most promising. There were three morbid processes which occurred in nearly every part of the body, which produced definite anatomical changes, caused regular clinical symptoms, and called for appropriate methods of treatment. These morbid processes were congestion, degeneration, and inflammation. The different forms of kidney diseases which were commonly included under the name of Bright's disease could all be conveniently classified under the heads of congestion of the kidney, degeneration of the kidney, and inflammation of the kidney.

Such a classification had the merit of being simple and easily understood, of resting on an anatomical basis, and of being of practical use for clinical purposes. The congestions of the kidney were naturally divided into acute and chronic congestions. They must always depend upon causes which affected the circulation and caused an accumulation of venous blood in the kidney.

Acute degeneration of the kidneys was found almost constantly with the infectious diseases and with poisoning by arsenic, phosphorus, and mercury. It occurred in many different degrees of severity, and so we found the renal epithelium merely swollen and granular, or infiltrated with granules, or broken and disintegrated, or in the condition of coagulation necrosis. In correspondence with the degree of the degeneration of the renal epithelium was the severity of the clinical symptoms. The urine was unchanged, or its quantity was diminished, or it contained a little albumin, or the albumin was abundant with casts and red and white blood-cells. Many of the examples of this lesion were of so mild a type that they had no symptoms except the changes in the urine. The severe forms were dangerous to life, but dropsy and disturbances of the circulation were not associated with them. Acute degeneration, therefore, included a well-defined set of cases, definite in their lesions, their causes, their symptoms, and evidently not likely to be influenced by any treatment.

Chronic degeneration of the kidney was produced by the same mechanical causes as those which produced chronic congestion—by chronic alcoholism, by chronic diseases, and by vicious modes of life. It was therefore always a secondary lesion. The only changes in the kidney were in the epithelium of the tubes, of which the cells were swollen, granular, and infiltrated with fat. But if the degeneration was due to chronic congestion, there would also be changes in the glomeruli.

The quantity of the urine varied at different times in the same case and also in different cases; it might be abundant, scanty, or suppressed. Albumin and casts in moderate quantities were often present, but the specific gravity was not lowered. Such a degeneration of the kidneys had a decided effect upon the health and nutrition of the patients. They lost flesh and strength, became anæmic, and finally passed into the typhoid state with delirium and stupor. But dropsy and disturbances of the circulation were not associated with this form of kidney disease. As the kidney lesion was always secondary to some other serious morbid condition, it was often difficult to tell how much of the loss of health was due to the primary disease and how much to the change in the kidneys.

The inflammations of the kidney were naturally subdivided into acute exudative nephritis, acute productive or diffuse nephritis, chronic productive or diffuse nephritis with exudation, chronic productive or diffuse nephritis without exudation, suppurative nephritis, and tubercular nephritis. Acute exudative nephritis was an acute inflammation of the kidney characterized by congestion, an exudation of plasma, an emigration of white blood-cells, and a diapedesis of red blood-cells from the vessels, to which might be added swelling or necrosis of the renal epithelium and changes in the glomeruli. In most cases of exudative nephritis the patients recovered and the glomeruli returned to their natural condition.

In some examples of exudative nephritis we also found a thickening of the walls of the branches of the renal artery within the kidney. This thickening was principally due to a swelling of the muscle-cells in the walls of these vessels. Acute exudative nephritis was frequently a primary disease, either occurring after exposure to cold, or without discoverable cause. It complicated scarlatina, measles, diphtheria, typhoid fever, acute general tuberculosis, pneumonia, acute endocarditis, acute peritonitis, dysentery, erysipelas, diabetes, and many other of the infectious diseases and severe inflammations. It was one of the forms of nephritis which complicated the puerperal condition. In the milder cases the only symptoms were the changes in the urine. This was somewhat diminished in quantity, of normal or high specific gravity; it contained albumin in moderate quantities, a few casts, sometimes blood. In addition to the changes in the quantity and composition of the urine, the patients presented constitutional symptoms which varied, in the different cases, as to their number and their severity. A febrile movement, with more or less prostration; stupor, headache, sleeplessness, restlessness, muscular twitchings, and general convulsions; dyspnœa, loss of appetite, nausea, and vomiting; a pulse of high tension with exaggerated heart action, or hypertrophy of the left ventricle; dropsy and anæmia—these might be called the characteristic symptoms of acute exudative nephritis.

Acute productive or diffuse nephritis was the most serious and important of all the forms of acute nephritis, not only for the reason that it involved so many of the structures of the kidney, but because its lesions were from the first of a permanent character, and because disturbances of the circulation were so frequently associated with it. It was one of the forms of scarlatinal nephritis; it occurred early and late in the course of diphtheria; it was the most important variety of the nephritis of pregnancy; and it was especially frequent as a primary nephritis with or without a history of exposure to cold. The changes in the kidneys were extensive and well marked. The kidneys were large, at first smooth, later sometimes a little roughened; the cortical portion was thick, white, or mottled with yellow or red or congested; the pyramids were red.

In these kidneys we found the same lesions as had been described as belonging to exudative nephritis, but with two additional changes—changes which were found in the earliest stages of the inflammation and which gave the characteristic stamp to the lesion—first, a growth of connective tissue in the stroma; second, a growth of the capsule-cells of the Malpighian bodies. Both these changes did not involve the whole of the kidney, but symmetrical strips or wedges in the cortex which followed the line of the arteries. These wedges were small or large, few or numerous, regular or irregular, in the different kidneys. The urine during the acute periods of the nephritis was scanty, colored by blood, of high specific gravity. It contained much albumin, numerous casts of all kinds, and red and white blood-cells. The patients developed all the symptoms which we were accustomed to associate with Bright's disease: Headache, restlessness, neuralgic pains, delirium, stupor, coma, muscular twitchings, and general convulsions; dyspnœa and cough; loss of appetite, nausea, and vomiting; neuro-retinitis; diarrhœa; increased arterial tension and hypertrophy of the left ventricle of the heart; anæmia, loss of flesh and strength; and dropsy, often developed to an extreme degree. The prognosis of this form of nephritis was bad. The lesion was a permanent and a progressive one. It was, indeed, apparently possible to recover from it, although with damaged kidneys; but this was the exception. The rule was that sooner or later the disease proved fatal.

In *chronic productive or diffuse nephritis with exudation* the glomeruli were changed in several different ways: 1. There was a growth of the capsule cells in such numbers that they compressed the tufts. The cells covering the capillaries were also increased in size and number. The capsule cells might finally be changed into connective tissue and the tufts become atrophied. 2. The glomeruli were of large size; the cells covering the capillaries were increased in number so that the outlines of the capillaries were lost, but yet the capillaries were not compressed nor the glomeruli atrophied. 3. There was a growth of the cells which covered the capillaries and of the cells within them. Of the cells which covered the capillaries, the cell bodies became very large, the capillaries were compressed, and the glomeruli eventually became atrophied. 4. The walls of the capillary vessels became the seat of waxy degeneration, while the cells which covered them were increased in size and number. 5. If the nephritis followed chronic congestion, the capillaries were dilated and there was an increase in the size and number of the cells which covered the capillaries.

The arteries remained unchanged, or they were the seat of obliterating endarteritis, or there was a symmetrical thickening of all the coats of the artery, or all the coats of the artery were thickened and converted into a uniform mass of dense connective tissue, or there was waxy degeneration of the wall of the artery. There was hardly any limit to the variety of the disease, but the most constant symptoms were anæmia, dropsy, and albumin in the urine. Dropsy, as a rule, was absent in non-exudative nephritis, unless it was complicated by chronic endocarditis or cirrhosis of the liver. In some cases the only symptoms up to the time of the patient's death were gradual loss of flesh and strength and disturbances of digestion, the patient dying feeble and emaciated. These cases were hard to make out, unless the specific gravity of the urine was low and a little albumin present. Otherwise there was nothing to draw attention to the kidneys as the cause of the illness. Loss of eyesight from nephritic neuro-retinitis might be the first symptom. The patients might suffer from the symptoms of cardiac disease for years before the congestion or degeneration of the kidney was succeeded by chronic nephritis. In many cases the course of the nephritis was modified by the complicating emphysema, phthisis, endocarditis, endarteritis, or cirrhosis of the liver. Such a classification as this of kidney diseases brought with it a rational system of therapeutics. Acute congestion of the kidneys could be relieved by the application of heat to the surface of the body. Chronic congestion was best managed with the drugs which stimulated the heart and dilated the arteries. We evidently had no means at our command by which we could influence acute degeneration of the renal epithelium; fortunately the great majority of the cases of acute degeneration were not serious. Chronic degeneration also seemed to be a condition which we were unable to treat. In acute exudative and in acute diffuse nephritis the main indications for treatment were to diminish the severity of the nephritis and to regulate the circulation. To diminish the severity of the nephritis we employed cups over the lumbar region, heat over the lumbar region or over the entire body, and the internal use of calomel, sulphate of magnesium, opium, aconite, or digitalis. The disturbances of the circulation were largely the causes of the cerebral symptoms and of the dropsy. With a laboring heart and contracted arteries we employed the drugs which dilated the arteries—chloral hydrate, opium, nitrite of amyl, and nitroglycerin; or we diminished the quantity of the blood by venesection, sweating, or purging. With a feeble heart and relaxed arteries we used the cardiac stimulants. In chronic nephritis climate and mode of life constituted the important parts of the treatment; it was doubtful if drugs exerted any effects on the nephritis. A warm, dry climate and an out-of-door life were of the greatest importance. Medicinal treatment could, however, be employed with advantage for the relief of the anæmia, the dropsy, and the disturbances of circulation.

Dr. A. H. Smith, of New York, said that with the discussion of Bright's disease the question of the significance of albuminuria was inseparably connected. But as a preliminary to determining whether there was albumin in the urine we must decide as to what, or rather how much, should be included in the term albumin. Some studies which he had recently made seemed to show that albumin, or, to be precise, serum albumin, was a very indefinite term—in fact, that it did not represent any definite clinical substance. He found that a solution of Merck's "pure serum albumin" in water gave, when boiled, a precipitate. This being filtered out, and the filtrate treated with nitric acid, a second precipitate was formed. On filtering again and adding a strong solution of mercuric bichloride, a third precipitate was formed. On filtering once more and agitating the filtrate with ether, a precipitate was formed which rose slowly to the surface. Finally, after filtering this out, agitation with chloroform threw down a fifth dense white precipitate. Here, then, we had five distinct precipitates formed successively from the same portion of a solution of pure serum albumin, and the author had no reason to suppose that he had exhausted the possibilities in this direction. From these observations, coupled with the fact that chemists had never been able to fix upon a definite formula for albumin, no two specimens giving the same analysis, he thought we were justified in the inference that there was no body having a definite chemical composition to which the name albumin could be affixed, but rather that albumin, like the contents of a brewer's vat, was a transition substance, the exact composition of which changed by insensible gradations as the transition advanced, and that any given specimen was simply a mixture of different gradations, some of which responded to one test and some to another. Now, clinically, what sort of a precipitate should be considered to decide whether a patient had or had not albuminuria? Should it be the one obtained by heat, or the one obtained by nitric acid, or the one by picric acid, or the one by the various other tests devised, or by some more delicate test yet to be discovered? It was very important that this should be settled before we passed sentence upon a patient, particularly as at least two of the precipitates which the author had obtained from serum albumin could be obtained from the urine of any person promiscuously selected. Normal urine agitated with ether would give a more or less abundant precipitate precisely similar to that from serum albumin. Filtering this out and agitating the filtrate with chloroform gave a precipitate which was again precisely similar to that for serum albumin. The impression which the author drew from this was that under normal conditions there was an excess of nutritive material in the blood, and that a considerable share of the albuminous portion of this excess passed through the kidneys without having become at any time a part of the tissues. This overflow contained albuminoid material in various stages of elaboration, any stage of which might cause a response to some one test but not to others. There was no definite line of demarkation between those albuminoid substances which were normally present in the urine and those which were abnormal. The most we could say was that urine which responded to the coarser tests, such as heat and nitric acid, was more likely to be abnormal, while the more delicate tests might throw down normal as well as abnormal constituents of the urine. Certainly ether and chloroform were tests, and if their evidence was admitted, all the world would have albuminuria.

Dr. V. C. Vaughan, of Michigan, said that if Dr. Smith had made his experiments with Merck's serum albumin he had used a preparation that was not chemically pure, and that it was not surprising that he got a precipitate with ether and chloroform. He did not think the results with the delicate tests fallacious. As to getting a precipitate in the urine of any healthy individual, this could be done, but the substance was not albumin; it was peptones. He thought that for all practical purposes the three tests—heat and nitric acid, acetic acid, and potassium ferrocyanide—were all that was necessary in passing judgment on a suspected case.

(*To be concluded.*)

AMERICAN GYNÆCOLOGICAL SOCIETY.

Sixteenth Annual Meeting, held in Washington, on Tuesday, Wednesday, and Thursday, September 22, 23, and 24, 1891.

The President, Dr. A. Reeves Jackson, of Chicago, in the Chair.

(*Concluded from page 413.*)

Address of the President.—This was a plea for greater conservatism in gynæcological practice. The propriety of examining and treating unmarried women and young girls should be seriously considered, and such examinations should not be made unless the duty to do so was plain. The present ultra-surgical tendency among gynæcologists was reprehensible, so also was the tendency to rush into print with reports of surgical cases, especially if the operations did not have a fatal issue. He hoped that the society would frown on such procedure, and believed that there should be a censorship over all such material when offered as contributions to the transactions of the various societies.

A vote of thanks for the president's address was moved by Dr. H. P. C. Wilson, of Baltimore, and was unanimously carried.

Cancer of the Cervix Uteri; Results of Treatment by High Amputation.—Dr. W. H. Baker, of Boston, read a paper with this title. Experience was of great or even unusual value in the performance of such operations as the one under discussion. The cases should be followed up continuously, year after year, and this was often a matter of the greatest difficulty. Such a plan would enable one to detect a recurrence of the disease at a time when it could be treated with advantage. This had been the reader's plan, and he was able to give the continued history of his first series of cases, and also the history of a second series extending through quite a number of years. The cases narrated represented only a small portion of those which had come under the reader's observation, and had been selected as those which were most suitable for radical operation. The general practitioner did not recognize such cases early enough, and should be educated to teach his patients to submit to an examination when the least suspicion of malignant disease appeared. The operation which was performed by the speaker was a high amputation of the cervix, followed by the thorough use of the thermo-cautery. The first series of cases had now been under observation from ten to twelve years, and five out of the ten patients in the original number were still living. In some of the cases the disease had recurred within a few months, had been operated upon again, and had remained away, the patients having been seen or heard of within a few months. The reader disagreed with Byrne, who preferred the cautery to the exclusion of the knife and scissors.

A very useful point in his technique consisted in passing a silver suture around each uterine artery as far away from the uterus as possible. This enabled one to work with the cautery to a greater extent on either side of the uterus without interference from hæmorrhage. The second series of cases had been under observation from 1882 to 1889, and included sixteen cases. The following table showed the results:

Duration of Life after Operation.

No. 1. Three years.
No. 2. Six years.
No. 3. Living and well eight years after operation.
No. 4. Living and well four years after operation.
No. 5. Living and well six years and a half after operation.
No. 6. Lived six years.
No. 7. Lived eight months.
No. 8. Living and well after seven years.
No. 9. Living and well after six years.
No. 10. Died after six months from recurrence of disease.
No. 11. Died in two years,
No. 12. Died in two years from mental disease.
No. 13. Living three years since operation.
No. 14. Died after one year.
No. 15. Living three years since operation.
No. 16. Living three years since operation.

Of these sixteen cases there were no deaths from the operation, and in ten there was no recurrence of the disease.

These statistics warranted the speaker in alleging greater safety to life and longer respite from recurrence of the disease for high amputation than for total extirpation. All the diseased tissue should be thoroughly removed, the thermo-cautery should be thoroughly applied, the wound should be left open, and a secondary operation should be done as soon as the disease recurred. A respite of fifteen or eighteen months was not an evidence that the disease was cured; the cases should be studied for much longer periods. High amputation was indicated for all cases of cancer of the cervix in which the uterus was not fixed, also in cases of cancer of the endometrium if the uterus was not fixed.

Dr. JOHN BYRNE, of Brooklyn, congratulated the reader on the excellence of his results. His operation was essentially the same as that which was practiced by the speaker, but he used only the cautery and believed that with the cautery knife everything could be done which was done with knife and scissors.

Dr. T. H. REAMY, of Cincinnati, felt that the statistics of the reader were very convincing. He believed that the occasional use of the knife was better than the exclusive use of the cautery, for with the latter cicatrization was apt to be extensive, and with it more or less deformity. He did not agree to the statement that the operation with the cautery was always a bloodless one, and the ligatures and scissors prepared the way for a cleaner operation with the cautery than if they were not used. The objectors to the high amputation were usually those who had not had much experience with it. Another advantage which had been mentioned by the reader was that if a secondary operation was required the conditions would be more favorable for the removal of tissue if the high operation and not total extirpation had previously been done.

Dr. J. E. JANVRIN, of New York, thought that the appropriate field for the high operation was a limited one. Statistics of vaginal hysterectomy were not yet available for comparative purposes, as the time which had elapsed since the operation had first been performed was not sufficiently long. The speaker felt warranted in continuing to do vaginal hysterectomy in appropriate cases.

Dr. W. GILL WYLIE, of New York, also preferred vaginal hysterectomy to the operation which was advocated by the reader. He had operated twenty-five times, with but one death as the result of the operation. The fear of injuring the ureter sometimes prevented operators from removing tissues laterally as far as was desirable. He believed that a radical operation like hysterectomy was more likely to effect a cure, just as a radical operation upon the breast was more effective than a partial one. Infection was to be avoided in the radical operation by removing all necrotic tissue. The uterus having been removed, the vagina should be packed with iodoform gauze.

Dr. H. T. BYFORD, of Chicago, had performed vaginal hysterectomy twenty-five times with but one death, and the cause of that was delirium tremens. He had operated in cases in which there were pus and other infectious material in the pelvis, and the patients recovered as well as in those cases in which there was no pus. The broad ligaments should be tied as near the pelvic walls as possible.

Dr. T. A. EMMET, of New York, believed that most cases of cancer of the uterus seen by gynæcologists were cases in which one could only expect to prolong life, there being no possibility of radical cure. There were undoubtedly cases in which the high amputation was as radical in its effects as complete removal of the uterus. The statistics of the paper which had been read demonstrated this. His experience with the operation began in 1850 with Sims. The operations were very bloody ones, and were not infrequently followed by hæmorrhage on the third or fourth day. He believed that he could operate more satisfactorily with scissors than with the cautery. He still adhered to his opinion as to the value of covering the stump with vaginal mucous membrane, leaving no surface to granulate. He had done operations in cases in which there had been no recurrence for fourteen years, only a portion of the organ being removed.

Dr. BAKER repeated the statement that those cases were best suited to high amputation in which the disease was limited to the cervix or the endometrium. If the body and the cervix were both involved, total extirpation should be done. He admitted that in skillful hands vaginal hysterectomy was a comparatively safe operation.

Can we avoid Mural Abscess and Hernia after Laparotomy?—Dr. H. T. HANKS, of New York, read a paper thus entitled. It was admitted by all that a clean incised wound would heal more readily than a lacerated one; hence the necessity that the tissues in the abdominal wound should not be bruised or torn. This implied that there should not be too much retraction or too much sponging. All the appliances of the operation should be aseptic, and the pubes should be shaved twelve hours before the operation was performed. The first dressing was sometimes left too long; three days were usually sufficient. The sutures should be cut as soon as possible. It was well to have a bichloride dressing upon the abdomen two hours before the operation was begun. As to the needles for closing the wound, he preferred the Keith, Skene, Hagedorn, or those which he had devised himself. One must avoid making too many needle punctures, but the peritonæum and the fasciæ should be sewed separately. The tissues could also be injured by using water that was too hot for irrigating purposes. Sinuses might be avoided by using drainage-tubes which were not too long. The tubes must be kept clean, and one of the abdominal sutures should be left loose when the wound was closed, and tightened when the tube was removed. Ventral hernia was too common an accident. He had seen five cases in the past three months. Some of the causes of hernia were the use of too large tubes and the failure to bring the edges of the wound into exact apposition, also drawing the deep sutures too tightly and using too many sutures.

Dr. T. A. Emmet preferred silver wire as a suture material, and explained by a diagram the manner in which it acted as a splint to the tissues.

Dr. H. T. Byford believed that there were cases in which neither abscess nor hernia could be avoided, whatever precautions were taken. It was due, perhaps, to some peculiarity in the tissues themselves. In very fat persons all fat which had been bruised or destroyed during the operation should be removed before closing the wound. Buried sutures were always a source of irritation and should not be used. Worm gut was the best suture material with which he was acquainted. A curved needle should be used in closing the wound, and the suture should describe a circle in the tissues in order to equalize the tension in all parts.

Dr. W. G. Wylie believed that hernia could be avoided if the fasciæ were closed by a separate course of sutures. He had introduced this method some years ago, and had found it perfectly satisfactory.

Dr. J. R. Chadwick, of Boston, had found that perfect union of the fasciæ in all cases was not possible even if Dr. Wylie's directions were carefully carried out. The perfect device for closing the abdominal wound had not yet been suggested.

Dr. R. B. Maury, of Memphis, had had but one case of ventral hernia in more than a hundred abdominal sections, and in that case the incision had been only an inch and a half in length. He used a simple round needle in closing the wound.

The Best Posture in the Different Stages of Labor.—Dr. H. J. Garrigues, of New York, read a paper thus entitled. It was believed that this question could not be settled by reference to the customs in savage and barbarous tribes, otherwise it would have to be admitted that civilization had done nothing to improve the conditions of animal or low intellectual life. The object of posture in all cases was to diminish pain and to seek for the greatest degree of safety and comfort for mother, child, and accoucheur. During dilatation the women should be encouraged to move about and assume any posture which was least uncomfortable, but subsequently it was believed that the semi-recumbent posture on the left side would be found more satisfactory than any other. As the vulva opened, the thighs should be thoroughly flexed, the coccyx would retract, and the head would move toward the pubic arch. During and after the expulsion of the placenta the dorsal posture could be assumed. If the labor was a lingering one, the squatting posture might be tried.

Dr. A. F. A. King, of Washington, thought it a difficult matter to define the normal posture in labor, for one could not say just what normal labor was. He had had ocular evidence of the value of the squatting posture in a case of transverse presentation, and seen with what ease turning was accomplished in this posture simply by the pressure of the thighs.

Dr. Charles W. Sawyer, of Chicago, had seen a Pi-Ute Indian woman delivered in the standing posture, the delivery being accomplished with great ease.

The Influence of Imperfect Development of the Generative Organs as a Cause of Uterine Disease.—Dr. W. Gill Wylie read a paper with this title. Incorrect views as to the origin of uterine displacements—views which attributed them to colds, injuries, etc.—had led to the improper use of the pessary, and in many cases had resulted in perimetritis and parametritis. The reader had reached the conclusion, years ago, that imperfect development of the uterus was the cause of many of its diseases. The children of rich and intelligent people were more likely to pass through the period in which children are especially susceptible to disease than the children of the poor. This was because they were better cared for. They often reached puberty in a delicate condition, perhaps with inherited weaknesses, while the poor who survived were, in the majority of cases, vigorous and healthy. Too often the physical development of children of the rich was neglected, the mind being pushed to a disproportionate degree. The results, in many cases, when adult life was reached, were infantile uterus, sterility, dysmenorrhœa, constipation, fissure of the anus, erosio uteri, disease of the glands of the cervix uteri, pain in the left side, hysteria, and fungous endometritis. Early marriage would in some cases stimulate the organs to mature development, but if pregnancy occurred, the labor was very apt to be severe and the puerperium abnormal. The diseased condition of the uterine glands would also favor new growths. The way to avoid all these evils was to keep the general health good during childhood, to keep the bowels regular, to insist on plenty of outdoor exercise, and avoid stimulation of the brain until after the age of puberty. The condition of the endometrium at the menopause was very similar to its condition at puberty in badly developed uteri. The treatment at both periods was the same—namely, forcible dilatation of the uterine canal.

Dr. A. W. Johnstone, of Danville, Ky., had expressed views similar to the reader's in a paper read four years ago. The infantile uterus and undeveloped sexual organs in general were the cause of many serious lesions during labor. Diseases of the tubes, cirrhosis of the ovaries, leucorrhœa, and low forms of peritonitis could be traced in many cases to the infantile uterus. The first menstruations in such cases were frequently profuse, and tumors might develop soon afterward.

The Technique of Vaginal Fixation of the Stump in Abdominal Hysterectomy.—Dr. H. T. Byford read a paper thus entitled. The stump could be ligated in sections or in mass, the ends of the ligatures should be very long, and then, after incising the vagina and holding the edges of the wound well apart, the stump could be turned into the vagina. The peritonæum should be closed before the fingers were introduced into the vagina. The bladder peritonæum was to be drawn over the stump and stitched to the posterior aspect of the cervix. No drainage of the peritoneal cavity would be required; any oozing that might persist should be stopped with Monsell's solution, and a gauze tampon should be placed in the vagina. More trouble was likely to occur in these cases from too much handling of the bowels than from any other cause. The sutures between the peritonæum and cervix should be passed as far as possible from the sloughing stump. Of the three methods of treating the stump in hysterectomy—namely, the intraperitoneal, the extraperitoneal, and that by total extirpation—the latter would be an ideal method if it was not so dangerous. Ventral fixation of the stump was a safe method in one sense, but it involved severe traction, possible hernia, and sloughing. The author's method of vaginal fixation was the best and least dangerous that he knew of.

Some Clinical Teachings as to the Ultimate Results of Removal of the Uterine Appendages.—Dr. T. A. Reamy read a paper with this title. During the last five years the author had removed the uterine appendages in 164 cases for a great variety of conditions. In several cases they had been removed for mental and nervous diseases, including hystero-epilepsy. The results in some of these cases had been good, in others there had been decided failure. There had been 17 cases of pyosalpinx, 56 of hydrosalpinx, 15 of hæmatosalpinx, and 8 of double hæmatosalpinx. In many of the cases there had been troublesome adhesions. In cases in which both ovaries were removed menstruation ceased at once, or in two to four months, except in cases in which there were fibroid tumors of the uterus. The appendages were removed as close to the uterus as possible in all cases. In almost all the cases metrostaxis followed the operation, and in some of them the hæmorrhage was profuse for some time. There were 60 cures, the diseased structures being removed and health restored; in 30 cases there was improvement, with subsequent relapse into the condition prior to operation, in the course of one to three years; in 10 cases there was no improvement. The condition of the sexual appetite was ascertained in 44 cases—in 14 it was extinguished, in 7 it was less ardent, in 16 it was not affected, in 7 it was increased. The conclusions were as follows:

1. Pyosalpinx was more common among the poor than among the well-to-do.
2. Gonorrhœa was a less frequent cause of disease of the appendages than was supposed.
3. In selected cases surgical interference for disease of the appendages gave brilliant results.
4. Removal of the appendages was a valuable measure in the treatment of hystero-epilepsy.
5. It was not a good measure for neurotic conditions.
6. Many cases of pelvic disease could be cured by less radical measures.
7. Many cases in which a cure was reported were deceptive.
8. The arrest of menstruation in so many cases showed the influence of the ovaries on menstruation.
9. The influence of removal of the appendages upon the sexual appetite had not been properly stated heretofore.
10. The influence of such an operation in all its relations should be fully considered before operating.

Dr. J. Taber Johnson, of Washington, had found the operation very useful to arrest the hæmorrhage from fibroid tumors. He did not believe the operation had any value in cases of nervous disease; the removal of the ovaries removed only one part of such disease. For pysosalpinx the operation offered relief, but it did not bring relief to dysmenorrhœa in all cases. In his experience, the sexual appetite was not usually affected by the operation. The patient could not become any worse than before in this respect; she was already unsexed by the disease.

Dr. Wylie believed that it was seldom necessary to leave an operation for removal of the appendages unfinished, as the author had done in a number of cases. He himself had never done a single incomplete operation. His operations for hystero-epilepsy had not given satisfactory results. It should be remembered that there might still be uterine disease remaining after an operation which would require treatment. Secondary operations were required in cases in which portions of ovaries were left, these portions subsequently becoming cystic. The author's percentage of pyosalpinx cases was very small; his own percentage was 75. In cases in which fibroid tumors of the uterus were present and were very large, the removal of the appendages would do no good.

Dr. S. H. Gordon, of Portland, Me., thought that the author's one hundred cases of cure or relief should demonstrate the value of the operation. Tait had recently stated that he operated in neurotic cases with far better results than formerly. The speaker believed in operating in such cases without waiting for years to see whether some other plan might succeed.

Dr. H. C. Coe, of New York, believed that peritoneal adhesions were almost inevitable after abdominal section. This was the cause of the pain which was sometimes so persistent, and also the cause of hæmorrhage in some cases. This was also an explanation of the many imperfect cures which followed this operation.

Dr. Reamy took strong moral ground against the performance of the operation unless the indications for it were most clear.

Indications for Abdominal Section in the Treatment of Puerperal Fever.—Dr. R. B. Maury read a paper thus entitled. The mortality from puerperal fever in the hospitals in Germany was now less than in private practice. Charpentier's classification of puerperal-fever cases was a very simple one and included, 1st, those cases in which the patients would almost surely get well; 2d, those in which they would almost surely die. The first class included cases of local inflammation, the second those cases in which there was diffuse sepsis. There was also a series of border-line cases in which there was puerperal metro-peritonitis which often had a fatal termination. The surgical treatment of such cases had usually shown bad results, but the results in cases of the first class, in which the suppuration was local, had been good. Price had reported four successful cases of that kind, Walker two, and the author one. In the second class the disease was too diffuse to be successfully treated by operation, there being no single local deposit of pus. In the third class of cases the puerperal peritonitis might be acute or chronic; the first was usually fatal within a week; recovery might take place if the chronic stage was reached, and the case might become operable. The abdomen must be opened and drained early in this stage if at all. It was important to know that disease of the appendages existing prior to pregnancy might be the cause of puerperal peritonitis. Such cases had been reported. This accentuated the importance of disease of the uterine appendages.

Dr. A. J. C. Skene, of Brooklyn, agreed with the author as to the propriety of abdominal section in puerperal cases in which the inflammation was a local one, and also admitted that a cure could not be expected if the inflammation had become diffuse.

Dr. Wylie thought that some cases of puerperal fever were curable by persistent irrigation of the uterus. They were easily managed if seen early and if the condition was localized. He had operated for puerperal peritonitis in a case in which there was much pus in the abdomen, but the operation was deferred too long. In another case in which there was phlebitis he had operated with success.

Dr. C. C. Lee, of New York, thought it difficult to distinguish between different varieties of puerperal peritonitis. He was not greatly in favor of abdominal section for such, as he had seen quite a number get well without it. Certainly, if the cases were septic, abdominal section would do no good.

Dr. Hanks believed in abdominal section for suppurating cases of puerperal peritonitis which were seen early. He prophesied that great changes in practice would take place in the next five years in connection with this disease.

A Study Relative to the Functions of the Reproductive Apparatus in American Indian Women.—Dr. Andrew F. Currier, of New York, read a paper with this title. A careful examination of the *Indian question* as it was presented to the people of the United States must lead, he said, to the conclusion that the Indians must submit either to civilization or to extermination. Civilization and savagery could not coexist at close contact; savagery always had to yield. The lines were fast closing around savages and savage institutions in this country, and *they* would have to yield. To break up tribal distinctions, give the Indians land in severalty, educate them, abolish polygamy, barbarous costumes, heathenish practices, and keep whisky away from them, was the present policy of the Indian Bureau, and it was wise, just, and hopeful.

The author's investigation had been made with the approval and co-operation of the Hon. Thomas J. Morgan, Indian Commissioner, the late Surgeon-General Dr. J. H. Baxter, and the present Surgeon-General Dr. Charles Sutherland, to whom he wished publicly to express his gratitude. He also desired to publicly thank the Indian agents, physicians employed at Indian agencies, and army surgeons who had co-operated with him and advised him, and without whose generous assistance the investigation could not have been made. The data had been obtained in the face of the greatest obstacles, for Indians were ignorant, superstitious, prejudiced, and suspicious, and the time required in many instances was considerable—perhaps more than was warranted by the results to be obtained.

From twenty-eight Indian agencies and army posts interesting facts had been gathered, all the correspondents being in immediate communication with the Indians, some of them for many years, and all being entirely reliable sources of information. The report of the Indian Commissioner for 1890 was also freely consulted and was the source of much valuable information.

The subjects upon which information was sought included menstruation, conception, gestation, parturition, the puerperal period, the menopause, sexual appetite, pelvic disease, including venereal and malignant, and a variety of others of kindred nature. In children the great frequency of glandular disease, including the venereal, was noted, and the great mortality among infants.

Puberty was reached in the southern tribes—the Apaches, Mojaves, and others—quite early, the average in a given number of Apaches being 12·86 years. In the northern tribes it was reached later, the average in a given number of Cheyennes and Arapahoes being 17 years. In a large number of Sioux the average age was 15·11 years. In most of the other tribes the average age was under 15, and it was believed that savage life *per se* neither hastened nor retarded puberty, but that climate, occupation, and hereditary tendency were the factors of greatest importance. With very many Indian women, especially the more degraded, the coming, course, and going of menstruation were alike matters of indifference. They neither knew nor cared as to its duration. At four agencies the duration had been observed, and the limits given were two and six days. Seldom was there any pain with menstruation; in some of the tribes it was said to be present at the first menstruation, but rarely afterward. Among the Indians who had become civilized painful menstruation was not infrequent. The quantity of blood lost was almost invariably a matter of indifference. Only a single case of amenorrhœa was reported.

The advent of puberty was celebrated by barbarous dances in some of the tribes. At the Quapaw Agency (Ind. Ter.) the "stamp dance" was thus celebrated. At Round Valley Agency (Cal.) the menstruating girl joined in a furious dance with older women, keeping it up until thoroughly exhausted. At the Neah Bay Agency (Wash.) the menstruating girl fasted three days, then was stripped naked and washed in a stream in the presence of her friends and relatives. After this her parents gave a "pil potlach" (giving away of blood), which was very disgusting and said to be analogous to a birthday party.

The menopause seldom caused any trouble. The age at which it came showed as wide a diversity as it did among civilized women, and there was also the same variety as to duration—it might come abruptly or it might require several years.

Marriage was said to be mainly a matter of convenience or inclination in most of the tribes, with nothing especially serious or binding about it, either party leaving the other as the notion prompted. Polygamy was still common in some of the tribes, though the Government was endeavoring to break it up. Virtue and chastity were ignored altogether, or but lightly esteemed, in all but few of the tribes. A change for the better in such matters was most marked and most gratifying in some of the localities which had been under educational and religious influences. Among the Klamaths (Oreg.) young men were not infrequently married to old women. Among the Crows and Assiniboines marriage arrangements were between a girl's parents and her suitor. The latter paid a horse for her, or some other object of value; the girl then measured the man for a pair of moccasins as a sign of acceptance, went to his lodge, and was henceforth his wife. The marriage and divorce customs among the civilized Cherokees were much the same as among intelligent whites. The ceremony might be either a simple agreement between the man and the woman, or the more formal one of the church or state. Cherokees were said to be more virtuous and stricter in regard to the marriage relation than whites.

Marriage in most tribes was consummated very early in life—at seventeen or under; in many cases almost as soon as puberty was reached.

Conception and gestation were favored in the majority of the tribes by an ardent sexual appetite and an out-of-door life, and large families of children were of frequent occurrence. Abortion seldom occurred as the result of the severe labor and other trials to which Indian women were all subject, but was common enough as the result of syphilis and criminal interference. Among the more degraded and physically inferior tribes the families of children were small. In almost all the tribes the infantile mortality was very great. The struggle for existence on the part of an Indian baby was a severe one. Some of the women drank decoctions of certain herbs to prevent conception. The Crows and Assiniboines used the most violent means for producing abortion. One of them consisted in thrusting a sharp stick into the vagina and womb and rupturing the ovum. Another consisted in causing the patient to rest her belly against the top of a stake which was driven into the ground and about two feet high, and whirl around upon this until the fœtus was expelled. In yet another, the patient lay on her back on the ground, a large board was laid across her belly, and upon this two or three of her female friends, in turn, stood or jumped until the blood gushed from the vagina, or the belly was kneaded or tramped upon until the fœtus was expelled.

Among these Indians last mentioned when the baby was born the umbilical cord was cut with a new butcher knife, the stump was well greased, and the infant was then thrust into a laced sack of blue cloth containing pulverized bull's manure or the inner bark of the cotton-wood tree. This lining, with the child's discharges, was changed three or four times daily. When the stump of the cord dropped off it was preserved in a beaded pouch and worn around the neck or waist as long as the person lived. Parturition was usually a natural and easy process with Indian women. One of the author's correspondents graphically said it was about as easy as for a cow to have a calf. With many women no assistance during that process was required or tolerated. With others midwives were employed, and these manifested varying degrees of superstition and ignorance.

Occasionally an herb-doctor would be called to attend a woman in confinement, but, as a rule, no man, whether a physician or not, was expected or allowed near a woman at such a time. Where the Indians were becoming educated and civilized they were gaining more and more confidence in white physicians, and occasionally one would be called to attend a confinement, especially if any complication had arisen. The favorite posture during labor was the kneeling one, the arms, chest, and head resting upon a support of some character; but by many the squatting posture was preferred. The ease with which delivery was accomplished in these postures, and the simplicity of the whole procedure, were not without suggestiveness to those of us who were endeavoring to carry out the multitudinous details of modern antiseptic midwifery. The lying-in chamber and the lying-in bed for the tribes which had little contact with civilization did not exist. Delivery took place in the open air, in the bushes, by the side of a stream, perhaps when the tribe was on a march. The regular duties of the squaw were not long interrupted by parturition, and if her party was on the march, she hurried on to overtake them after the birth of her baby.

In some tribes it was the custom to facilitate the expulsion of the placenta by tickling the parturient's nose with a feather, thus provoking sneezing.

Among the Sacs and Foxes the placenta was wrapped in the blanket on which delivery took place, and secured to a tree to keep it from wild animals. Should a wolf or coyote get it and eat it, the child would resemble such an animal and eventually be devoured by it. It must not be thrown into the river lest the child should resemble a fish or be drowned and eaten by fish.

The accidents of parturition were few, occurring, perhaps, as frequently as in the lower animals. The agency physicians had reported cases of faulty presentation, retention of the placenta, and rupture and procidentia of the uterus. The Indians were just beginning to appreciate the value of skilled assistance for such emergencies. Puerperal diseases were said to be unknown among Indians

Malignant disease was of rare occurrence, especially among the full-bloods. Cancer of the breast was reported, but not of the uterus. Of course, it was possible that the latter might exist and its existence never be known by any but the patients, owing to their extreme reticence concerning disease of the genital organs. For the same reason it was impossible to say to what extent pelvic disease in general existed among Indian women. Cases were reported in which there were deformity of the uterus, ovarian pain, abdominal dropsy, leucorrhœa, and gonorrhœa, so that it could not be said that pelvic disease was unknown among them. It was probable that they were less susceptible as well as less sensitive to such diseases than civilized women. Those who were becoming civilized or were already civilized suffered from pelvic disease to about the same extent as the whites. Venereal disease was said to be very prevalent, and doubtless it had much to do with the feebleness of the children and the high rate of mortality among the infants.

Conclusions.—1. Puberty: The mere fact of living in a savage state had not much to do with the early or late appearance of puberty. The Apaches and Mojaves of the hot and desert regions of Arizona matured young, but so did the females of southern Europe and the tropics generally. The law was general that both animals and plants should mature early under a tropical sun. The females in the northern tribes—the Cheyennes, Arapahoes, Crows, Assiniboines, and Sioux—developed more slowly, as was the case with women in northern Europe.

2. Phenomena of menstruation: Savage life, with its vicissitudes and hardships, did not usually interfere with the regular recurrence of the monthly flow. Influences which would disturb or check it, and possibly produce permanent injury to a woman in civilized life, seemed to have no such effect upon Indian women. Excessive menstruation was practically unknown. On the other hand, there were occasional instances of dysmenorrhœa or amenorrhœa in connection with disease or deformity of the pelvic organs, so that savage life did not necessarily furnish immunity from such experience.

3. The menopause: Indian women were exceptionally free from the nervous and vascular disturbances which so commonly accompanied the menopause in civilized life. The duration of the menopause varied greatly as it did in civilized life. It usually came between the fortieth and fiftieth years, but not infrequently was delayed far beyond the fiftieth year. Many gestations occurring in rapid succession, continuous hard work, and the exposure and physical suffering incidental to a savage life, did not tend to shorten the menstrual and child-bearing periods.

4. Marriage and sexual appetite: The social condition of Indian women was an anomalous one for this age and country. They must bear the burdens, do the drudgery, bring forth and rear the children, and then perhaps be cast aside at the merest whim of their husbands. Marriage among American Indians meant, as a rule, communism, polygamy, unrestrained lust, according to circumstances, all of which must be abandoned as they emerged into civilization, for they were incompatibles. Sexual appetite in Indians was the uncontrolled and uncontrollable desire of the wild beast, or it was an indifference in women of the degraded and debilitated tribes, except as it was associated with the idea of gain.

5. Conception and gestation: The habits and manner of life in the more vigorous and well-developed Indian women were favorable to fruitfulness in child-bearing. But the facts that so many children died in infancy, and that the restraints of civilized life were fatal to so many more, showed that the race was not a hardy one. The unhygienic condition of the homes in many tribes, with their filth and degradation, and the frightful abuses of the abortionists in others, were further tending to weaken the race and impair its future.

6. Parturition: The ease with which parturition was accomplished among Indians was an interesting fact. It must not be overlooked that the squatting or kneeling posture which they assumed during labor was more favorable to muscular effort than the postures with which we were familiar in the lying-in chamber. This was a suggestive fact. So also was the apparently total absence of puerperal diseases among Indians. This was the result of pure air and plenty of exercise and not of antiseptics, or even ordinary hygiene. The quick recovery and return to their usual duties of Indian parturients also suggested the possibility that we sometimes made invalids of our obstetric patients unnecessarily. Accidents occasionally occurred among Indian parturients just as they did among animals. Nature's work was sometimes far from perfect. This meant death to the mother or child or both, unless an intelligence beyond that of the savage could be summoned to avert it.

7. Pelvic disease: That pelvic disease had not been treated among Indians did not prove that it did not exist. Those diseases which resulted from infection, deformity, mal-development, and faults of circulation probably existed, but they went untreated and more or less unheeded until the suffering caused by them became keener and confidence in educated physicians stronger. The malignant diseases of the reproductive organs were almost unknown among Indians. This showed that neither privation, nor hard work, nor exposure, nor giving birth to many children, necessarily resulted in the neoplasms which so afflicted civilized women.

8. Venereal disease: Both local and constitutional forms of venereal disease abounded among Indian women. The frequency of syphilis, coupled with the great mortality among infants and the great prevalence of glandular and pulmonary disease among many of those who survived infancy, were evidences of the inroads which venereal disease had made upon Indian vitality.

Finally: Indian women in the savage state underwent less physical suffering in connection with the reproductive apparatus than civilized women. They menstruated, bore children, and passed the menopause with the minimum of discomfort as a rule. This was due to three causes: (1) natural or racial insensitiveness compared with the far more sensitive Caucasian; (2) abundance of exercise; (3) life in the open air.

Civilized life, with its complex conditions, would always present obstacles to the performance of the functions peculiar to women with the same ease with which they were performed by savages, and when Indian women exchanged the savage for the civilized state they must necessarily adopt also some of the ills inseparable from the latter.

Morphine Injections in Ectopic Gestation.—Dr. F. Winckel, of Munich, Germany, contributed a paper on this subject (read by Dr. J. C. Reeve). The author's experience with this means of treatment had been sufficiently extensive to warrant an expression of his opinion as to its value. This opinion, based upon experience and not upon theory, was one which he was not disposed to discard. Other methods might be of value and had their particular advocates. The object of his paper was not to discuss their relative merits further than to say that a certain amount of skill was necessary to practice them which was not possessed by every one. An injection of morphine could be made by any one into a gestation sac. Two cases were narrated in which such treatment was recently carried out and with the most satisfactory results.

Dr. T. Parvin, of Philadelphia, believed that candor should compel us to admit that there must be more than one way of relieving ectopic gestation. A method which did not commend itself to our way of thinking was not of necessity a bad or improper one.

Dr. J. C. Reeve felt little disposition to discuss a question of this character in view of the very severe criticism which had been given to a paper upon the subject of ectopic gestation which he had read before the society some years ago. He would simply say in regard to Professor Winckel's paper that he believed his method might have merit, though he had had no personal experience with it.

Dr. H. D. Fry, of Washington, believed that in the treatment of so serious a condition as ectopic gestation we should use those means which commended themselves to our conviction as safest and best. He then narrated the history of a recent case of ectopic gestation in which his diagnosis had been confirmed by experienced counsel. He had been prepared to do abdominal section at a moment's notice, but believed that a trial should first be made of electricity. Both the galvanic and faradaic currents were used at different sittings, and it was believed that the fœtus was destroyed at the third application. The tumor rapidly grew smaller and had now practically disappeared. The patient had reached the sixth week of gestation when treatment was begun.

Dr. Reamy believed that abdominal section was the best means of treating ectopic gestation, but was quite willing to admit that electricity might be justifiable, in some cases, in the earlier months.

Immediate Closure of Lacerations of the Cervix.—Dr. C. Kollock, of Cheraw, S. C., read a paper thus entitled. The operation for immediate closure of lacerations of the cervix uteri should always be satisfactory on account of the simplicity of the conditions and the ease with which the operation could be performed. There was no need of knife or scissors, for the parts were already prepared, and one had only to put the patient in proper posture and introduce the sutures. Silver wire was to be preferred, and he had seen no reason for believing that the wound would not heal readily and involution of the uterus go on satisfactorily. He narrated three cases, in all of which the tear had been very extensive and the hæmorrhage very profuse. Five silver-wire sutures were used in each case, and when they were removed on the twelfth day the wounds were thoroughly healed. He knew of no reason why the sutures should not hold in such cases quite as well as in the immediate operation for rupture of the perinæum, or in the Cæsarean section. He advocated the immediate operation not only for cases in which the hæmorrhage was profuse, but for all in which the tearing of the vaginal portion was extensive.

Dr. Charles Jewett, of Brooklyn, had seldom been called upon to perform the immediate operation, but believed that it was easy of execution, and imperative in cases in which the hæmorrhage was profuse. The danger of infection from manipulation of the tissues at such a time must be borne in mind, and it applied to all cases of parturition whether any operation were performed or not.

Dr. R. W. Murray, of New York, believed that the operation was imperative in cases in which hæmorrhage was profuse. If the cervix was drawn down to the vulva the traction which would thus be required would check the hæmorrhage, and then the sutures could easily be introduced. He believed with the reader that the results should be as good as with the secondary operation.

Dr. Thomas A. Emmet stated that he had recommended the primary operation only to arrest hæmorrhage. If the parts were kept clean after parturition, Nature would heal the rent better than could be done by art. If this was not done and the tearing was extensive, there would be more or less destruction of tissue, and stasis in the vessels which were left without their customary support of connective tissue, and cellulitis with the changes which were so often seen in the tissues of the uterus and its surroundings would follow.

Dr. Coe believed with the other speakers that the primary operation should be only for hæmostatic purposes. If the circular artery, which was located high in the cervix, was ruptured, it would signify that the subperitoneal tissues of the uterus were torn, the wound being a lacerated and contused one. Here was an opportunity for septic absorption with the changes which were to take place during involution, if the tissues were closed. It was better to leave them open and allow Nature to heal the wound by granulation.

Dr. A. P. Dudley, of New York, believed that the danger of infection would be greater by leaving the wound open, with the lymphatics gaping; hence he was in favor of the primary operation.

Preventive and Conservative Treatment of Pelvic Tumors and Diseases.—Dr. Eugene Gehrung, of St. Louis, read a paper thus entitled. The reader thought it was a duty of the gynæcologist to use means of cure of minor severity and danger in preference to severe ones in every case in which such means would produce equally good results. He believed it was a law that the greater the resistance which was opposed to a pelvic or abdominal tumor, the more rapid would be its growth, for resistance implied stasis in the vessels and increased nutrition thereby. It was a familiar experience that many tumors did not grow rapidly until they became somewhat fixed in the pelvis, the growth being somewhat slower while they were free in the abdomen. With inflammation and adhesions came strangulation of certain portions, and then more rapid growth than had previously obtained. Cases were narrated in which the uterus and ovaries were diseased, and in which operations had been avoided by careful treatment, including such measures as raising the uterus from the floor of the pelvis, rupture of adhesions, massage, and the proper adjustment of a pessary.

Dr. W. E. Ford, of Utica, N. Y., commended the paper which had been read, and believed that the society was devoting itself too exclusively to the subject of abdominal surgery. Such a course would tend to weaken its influence with the general profession, with which other subjects were of greater interest and required elucidation.

Dr. Currier agreed to the suggestion which had been made by the previous speaker, but he also wished to criticise at least one portion of the paper, which was not entirely in the line of conservatism, or even, as it seemed to the speaker, in the line of safe practice. He referred to the matter of the rupture of adhesions within the pelvic cavity. This was suggestive of the operation which had been recommended a few years ago by Schultze, by which adhesions of the uterus to surrounding structures were to be ruptured with the finger in the vagina or rectum. He believed that in most cases this was either impracticable, impossible, or even undesirable, and he spoke from the standpoint of experience, having tried, without prejudice and without success, to carry out Schultze's directions. If the adhesions were few and slight, they would do no particular harm; if they were extensive, they could not be thus ruptured, as any one with experience in abdominal surgery must admit, and there was always the danger of rupturing some diseased organ, which might introduce a serious or even fatal complication. He preferred to take what seemed to him the more rational course of relieving such adhesions with the diseased organs which were associated with them by abdominal section. One would at least be able to tell what was being done by such a procedure.

The Anatomical Relations of the Lacerated Perinæum to the Mechanics of its Causation.—Dr. EDWARD REYNOLDS, of Boston, read a paper thus entitled. This paper was beautifully illustrated with diagrams, showing the various forms of perineal rupture and the changes which took place as the fœtus advanced through the lower portion of the parturient canal. The object of the paper was, first, the classification of perineal tears; second, the explanation of their occurrence on anatomical grounds. A longitudinal tear in the median line, deep or superficial, according to circumstances, was of common occurrence unless it was carefully guarded against. The lateral tear, with separation of the fasciæ, was also of greater or less frequency. The type form, however, which had been determined upon after careful observation in many parturitions, was the transverse crescentic median one with many modifications. This must occur at the point of greatest tension or of least resistance. The pelvic floor was divisible into an upper or deep layer and a lower or superficial one. The rupture was likely to occur where the upper stronger layer joined the weaker one, the former being stretched, the latter relaxed. The former was drawn or slid like a hood over the advancing head, and the rupture occurred if it did not retract. The longitudinal tears would occur in labors which were very rapid, the lateral ones in very slow ones. The aim of the immediate operation of perineorrhaphy should be to draw the lower set of fibers upward into apposition with the upper layer.

The Electrical Treatment of Uterine Fibroids in England.—Dr. GEORGE KEITH, of Brooklyn, read a paper thus entitled. This paper referred largely to the work of the reader's father, Dr. Thomas Keith, of London, and also to the similar methods which he himself was carrying out. It was not true that his father had abandoned hysterectomy, as he still did the operation for cases which were incurable by electrical treatment. Many cures had resulted from the latter, and it could fairly be said that when one was cured by this means no bad results were left. This was not so with many cases in which hysterectomy had been performed. The results upon the general condition after this operation were quite different from those which obtained after the removal of the ovaries for fibroid tumors of the uterus. It had been stated that there was a mortality after the electrical treatment of fibroids of the uterus. It was certainly remarkable, in view of the advantages to be derived, that the mortality was so small. The reader did not believe that the case had been fairly stated by those who said that electricity was useless. The opinion is not usually based upon personal experience. Three months' treatment was necessary to determine the value of electricity upon a fibroid tumor, and the patient was usually able to attend to her ordinary duties all this time. There was a cauterizing and an interpolar effect with the galvanic current, and it was believed that the latter was the more efficient. Just what its effect was it was difficult to say, except that it diminished the arterial supply and so impaired the nutrition. The intra-uterine electrode should be a rigid one of carbon or of platinum. If electro-puncture was to be practiced, the vagina should be thoroughly douched both before and after the operation. Long journeys before or after treatment were not advisable. If the tumor was a large one, the negative electrode should be used within the uterus. Treatment should not be given oftener than once in two or three days and not longer than five or ten minutes at a time. The dosage must vary with the tolerance of the patient and the condition of the tumor. Fibrocystic tumors were not suitable for electrical treatment, and for very large tumors the tubes and ovaries should be removed. Hysterectomy should be performed if electricity failed to effect a cure.

Diabetes Mellitus Gravidarum.—Dr. FRY read a paper on this subject. This disease was rarely mentioned in obstetric literature, and was probably unrecognized in many cases, the urine not being tested for sugar. Matthews Duncan succeeded in collecting and analyzing several cases of the disease. The disease was to be suspected if a woman gave birth to a dead child for which there was no apparent cause. The symptoms might have been so slight as not to have excited suspicion. A fatal case occurring in the reader's experience was narrated in detail. If there was a tendency to this disease in a given case, pregnancy would increase that tendency. After parturition was accomplished, a change for the better might take place, but should pregnancy recur, the result would be likely to be fatal. The duration of the disease varied; in the reader's case it was ten weeks. Should diabetes develop early in pregnancy, abortion would be probable prior to the seventh month, the fœtus being unusually well developed for its age. Among seventeen diabetic women who together experienced pregnancy seventy-nine times, only about half the pregnancies went to term and ended in normal labors. The distended bladder and abundance of liquor amnii in such cases would decidedly modify and add severity to the labor. If improvement was to take place, it might begin within a few days after the termination of the labor, dyspnœa and other unfavorable symptoms disappearing. The prognosis was usually bad, though the course of the disease might be mild from beginning to end. If a healthy child was born, the prognosis was apt to be favorable. A diabetic woman should not marry; pregnancy would jeopardize her life. The question of premature labor would arise in some cases. It should be induced before the seventh month in case the symptoms were severe.

Dr. C. CLEVELAND, of New York, exhibited an operating table of galvanized iron which was particularly intended for the performance of abdominal section in Trendelenburg's posture, though it was also possible to use it for other gynæcological operations.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Seventeenth Annual Meeting, held in St. Louis on Wednesday, Thursday, and Friday, October 14, 15, and 16, 1891.

The President, Dr. C. H. HUGHES, of St. Louis, in the Chair.

(*Concluded from page 498.*)

The Influence of Grave-yards on Public Health.—Dr. J. W. CARHART, of Lampasas, Texas, contributed a paper on this subject in which he drew the following conclusions:

1. From whatever standpoint this subject was approached, it must be with care and gentleness, since the grave-yard, though a constant menace to public health, had a pseudo-sacredness fostered by the profoundest sentiments of our nature.

2. The method of the disposal of the dead should be founded on reason and not on custom or sentiment.

3. The interment of the dead in the earth was never enforced by a statute, Jewish or Christian, and was merely incidental to both dispensations.

4. No law, human or divine, required us to dispose of the dead in a manner prejudicial to the health and comfort of the living.

5. While it might be an open question as to the right of the State to decide as to the manner of the disposal of the dead, unless in exceptional cases, it was clearly the province and duty of the State to prevent such disposal as would in any wise jeopardize the interests of the living.

6. From all the facts at our command, we were led to the conclusion that the grave-yard should become a thing of the past, and that incineration was the method most in accordance with science, sanitation, æsthetics, reason, and religion.

7. He would add, as a corollary to these several conclusions, that, since the intelligent, broad-minded physician was the almost exclusive guardian of public health in seeking to prevent the development and spread of disease, it was plainly his duty, when cemeteries were being located, to use his best endeavors to have them so placed as to jeopardize as little as possible the public health; and for its moral effect he should encourage efforts to beautify existing cemeteries; and that he should seek, as fast as possible, without too much violence to the tender sensibilities of the masses, to encourage incineration of the dead, or some other method more in harmony with sanitary science than the common modes now practiced.

Blennorrhœa.—Dr. J. T. Jelks, of Hot Springs, Ark., read a paper on this subject.

The Present Aspect of Cerebral Surgery.—Dr. Landon Carter Gray, of New York, followed with a paper on this subject, in which he epitomized the work of Horsley, Ferrier, Keen, and others.

The Importance of Recognizing a Temporary Rhachitic Condition in Infants.—Dr. John A. Larrabee, of Louisville, Ky., read a paper with this title.

Pachymeningitis Hæmorrhagica Interna, with Report of a Case and Presentation of a Pathological Specimen.—Dr. F. C. Hoyt, of St. Joseph, Mo., read a paper with this title, and suggested the following deductions, offering them as a practical and rational view of the subject:

1. That the disease known as pachymeningitis hæmorrhagica interna chronica was not a disease of the dura mater primarily, and not necessarily at all. The name was therefore a misnomer, and the simpler term, subdural hæmatoma, should be substituted.

2. That the condition was due primarily to paralysis or loss of the normal vaso-motor tonus, associated with structural changes in the cerebral vessels, particularly those of the pia mater.

3. That hæmorrhage might, and often did, take place into the substance of the dura from the causes stated in the paper, but that its vascular supply and anatomical structure rendered it improbable that these hæmorrhages played any part in the formation of a subdural hæmatoma.

4. That the hæmorrhage occurred from the vessels of the pia mater primarily, forced its way without difficulty through the upper web-like layer formerly called the arachnoid, escaping into the subdural space. The extravasated blood became organized, new vessels were formed, and these assisted in furnishing the recurrent hæmorrhages.

5. That the inflammation of the internal surface of the dura mater was secondary and due to the irritation of the extravasation and was not general, but occurred only in patches where organic union had taken place.

Camphor-menthol in Catarrhal Diseases.—Dr. Seth S. Bishop, of Chicago, in a paper thus entitled, reported a large number of cases of naso-pharyngeal catarrh, hay fever, and diseases of the ear as having been treated with camphor-menthol with much better results than menthol alone produced. The presence of the camphor appeared to intensify the action of menthol.

A number of hay-fever sufferers, among them the president of the United States Hay Fever Association, had obtained greater relief from this inhalant than from any other they had ever tried. This effect of camphor-menthol in reducing turgescence and consequent tumefaction of the turbinated bodies had rendered a contemplated operation for stenosis unnecessary in several cases cited.

Injections of a ten-per-cent. solution in lanolin into constricted Eustachian tubes had caused them to become patulous. The improved ventilation of the middle ear thus effected, together with inflation with a five-per-cent. or ten-per-cent. spray of the same liquid in hypertrophic tympanic catarrh, increased the hearing and produced a sense of clearness and comfort in the head.

Cases of laryngitis, with the voices reduced to a whisper, had been treated with inhalations varying from five per cent. to twenty per cent. in strength, with the result of restoring the voices completely in from twenty-four to forty-eight hours.

No ill results had followed the use of this remedy in the nose, throat, larynx, or middle ear. The ordinary strength of inhalations recommended by the reader were three per cent. or five per cent. for very susceptible or sensitive individuals, like hay-fever patients, and ten per cent. for less nervous persons with hypertrophic catarrh, etc. In order to reduce great swelling of the turbinates and relieve stenosis, the solution should consist of twenty per cent. or twenty-five per cent. of the camphor-menthol. The full strength of the camphor-menthol applied to eczematous eruptions relieved the itching and dissipated the redness and swelling. Similar results followed its application to herpetic eruptions.

Finally, camphor-menthol contracted the capillary blood-vessels of the mucous membrane, reduced swelling, relieved pain and fullness of the head, or stenosis, arrested sneezing, checked excessive discharges, and corrected perverted secretions.

Dr. F. King, of New York, read a paper in which he advocated the poro-plastic felt jacket in the treatment of spinal troubles.

Medical Progress was the subject of the President's address. He reviewed the history and progress of medicine and surgery. He said it was gratifying to the humanitarian student of scientific medicine to note the amazing progress lately made in the knowledge of the human organism, and in resources for its regulated control in health and disease. He referred to the wondrous laparotomies of Tait, the brilliant craniotomies of Victor Horsley, and the abdominal sections of Senn. He said that the memory of Harvey, Jenner, Jackson, McDowell, and a host of others, was not yet fully appreciated by the world at large, but their deeds would shine brighter and brighter as the world came to know them and fully realized, as we did, their incomparable benefactions, their unsurpassed greatness, and their unequaled heroism.

The Drainage of Chicago.—Dr. J. B. Hamilton, of Chicago, followed with an address in which he principally dwelt upon the topography of the city.

Lights and Shadows of a Doctor's Life.—Dr. Joseph M. Matthews, of Louisville, Ky., delivered an entertaining and remarkably humorous address with this title.

Are Conservative Amputations always in the Interest of the Patient?—Mr. Charles Truax, of Chicago, by invitation read a paper on this subject.

Intestinal Obstruction.—This was the title of a paper read by Dr. Henry H. Mudd, of St. Louis, in which he advised early operation.

Temperature no Guide in Peritonitis.—Dr. C. H. Dalton, of St. Louis, read a paper on this subject. He said so skeptical had he become on the subject that, in considering the advisability of an operation in abdominal cases, he was no longer guided by the thermometer. He took the temperature in all cases, but did not let the lack of fever influence him against operation when other symptoms, upon which he had learned to place far more reliance, would move him in the opposite direction. Surgeons found it difficult to convince the average physician that a violent peritonitis might exist with a normal, or even subnormal, temperature, for the teaching by some had heretofore been that sepsis was always accompanied by an elevated temperature.

Several weeks since he had been called in consultation in a case of intestinal obstruction, in which peritonitis had been in full blast. He had advised operation and had been met with the objection that there could not be much peritonitis with a temperature of 99·5°. He had pointed in vain to the patient's anxious countenance, to the great tenderness on pressure, the distended belly, the vomiting, and the pulse, as well as the fact that purgatives had been tried without avail. The doctor in attendance insisted upon one more dose of salts. It was given. It did not move the bowels, but did move the patient to that place from which no traveler returns. Time and again he had seen cases of intestinal obstruction with stercoraceous vomiting, rapid pulse, and anxious countenance (facies abdominalis), in which the temperature was about normal or even subnormal. In his earlier experience, the lack of fever in abdominal cases had puzzled him very much, and had led him astray in a number of instances. While it was well to remember that fever when present in belly cases indicated peritonitis, its absence did not warrant us in saying that peritonitis was not present, and should not blind us as to the actual condition.

Sarcoma of the Dorso-scapular Region.—Dr. George N. Lowe, of Randall, Kansas, read a paper on this subject. He reported a case in which he had operated, and the patient, a man, aged eighteen years, with no history of tuberculosis, carcinoma, or sarcoma, had recovered. The object of this paper was to show—

1. The necessity of an early operation in all cases of a malignant growth.
2. That some species of sarcoma were more rapid and destructive in their course than carcinoma, especially the spindle- and giant-celled variety.
3. The necessity of having a law to enforce patients so afflicted, as soon as a correct diagnosis could be made, to an early operation, thereby preventing great suffering and prolonging life.
4. That in a sarcoma which had grown to an enormous extent, infiltrating the surrounding tissue at any considerable extent from the main growth with cell proliferation, an operation was almost useless as regarded a permanent cure.

Appendicitis.—Dr. W. H. Link, of Petersburg, Indiana, read a paper and offered the following conclusions:

In the commencement of the attack, salines should be given often and liberally till the gut was completely emptied. Perfect rest should be advised in bed. All but liquid nourishment should be forbidden. If pain was severe, counter-irritation and dry heat should be applied until salines acted. If the patient improved, wait. If the pulse grew worse, if the temperature rose, if the pain increased, if the tumefaction became larger, if the tenderness became more marked, operate. At no time give morphine, but consider an increase of pain sufficient to demand relief by opium an imperative, unequivocal, and emphatic indication for surgical interference.

Rheumatism and Gout as Factors in the Causation of Eczema, and the Management of those Conditions, was the title of a paper contributed by Dr. A. H. Ohmann-Dumesnil, of St. Louis. He did not purpose speaking of the ætiology of eczema. The only phase which he desired to take under consideration was, as to how far rheumatism and gout were concerned in the causation and prolongation of eczema, and what was the proper management of those conditions in order to give the greatest benefit so far as the cutaneous involvement was concerned. Naturally this implied that he was about to sustain the position that the conditions named were ætiological factors, and such was probably the case. If we took the trouble to examine critically the history, condition, treatment, and results in patients, a mass of evidence would be found which, if it did not constitute absolute proof, bore so much weight with it that the probabilities would all tend to confirm and strengthen the position that rheumatism and gout prolonged, intensified, and even caused eczema. He had found it to be quite frequent also to note the fact that an acid condition was present in eczematous patients. It occurred too frequently to be regarded as a coincidence. Moreover, a correction of this acid condition found its good effect reflected in the ease with which the cutaneous trouble gave way to proper medication. Whether such patients were inclined to rheumatism or gout it was difficult to say; but that an excess of acid was found in all of these conditions there was no opportunity of denying For, if eczematous patients were interrogated in this respect, a large proportion of them would speak of acid eructations, pyrosis, and other evidences of the condition.

In regard to the management of gout and rheumatism volumes had been written and equally good results had been alleged for different methods of treatment. The most powerful alkali to affect the solubility of uric acid was, beyond all doubt, lithia. The urates of lithium were the most soluble known, and on that account a better elimination could be secured. Potassium salts came next in value in regard to their solvent value upon uric acid. The sodium salts, while exercising a good influence, were not so valuable in this respect as either of the others; and the magnesium salts were the least effective.

A question of no mean importance was that concerning the solubility of the various alkaline salts. Chemical investigation had clearly demonstrated that the bicarbonates of lithium, potassium, and sodium were not only the most soluble, but the most easily assimilated by the animal organism. To prevent any decomposition it was only necessary to dissolve them in carbonated water, which not only kept them in a soluble state but also added to their palatability.

Dr. Enno Sander, of St. Louis, had prepared his well-known lithia potash water, which filled all the indications required, and which acted, not only as an antirrheumatic, antilithic, and antarthritic mixture, but constituted a grateful table water as well. It not only acted as a curative remedy, but, what was of still greater importance, it was a reliable prophylactic. Its composition was as follows:

Lithium bicarbonate..............	gr. xiij;
Magnesium bicarbonate...........	gr. x;
Potassium bicarbonate........ ...	gr. xvj;
Sodium chloride..............	gr. x;
Carbonated water................	℥ xvj. M.

This quantity, one pint, should be taken daily, or the amount increased if deemed necessary.

Conditions occasionally arose in which it would be found that a mixture of salicylate of sodium and bicarbonate of sodium would effect the happiest results in rheumatism, and occasionally in gout. Given in carbonated water the administration was made pleasant, and the mixture had an effect upon the patient which was refreshing at the time it was taken, and which effected beneficial results in a very short time. When eczema was present the proper local remedies should be made, and it was astonishing how their action would be accentuated by the internal use of the alkalies as above indicated.

Observations on the Management of Uterine Tumors.—Dr. C. A. L. Reed, of Cincinnati, read a paper in which he said that there were certain solid tumors of the uterus which required no operation. They were for the most part comparatively small neoplasms, either interstitial or subserous; they were indolent in growth, and they did not produce alarming symptoms from either pressure or hæmorrhage. There were certain other myomata of the uterus that were uniformly recognized as demanding operation. They were for the most part rapidly growing tumors in young subjects, removable fibrocystic tumors, soft œdematous tumors, large bleeding fibroids, and those growths which gave rise to ascitic accumulations.

The author offered the following conclusions:

1. That all patients with persistently hæmorrhagic uterine myomata of whatever variety should be advised to have an early operation.

2. In young subjects with multinodular tumors, giving rise to alarming hæmorrhage, the appendages should be removed when practicable as an alternative for extirpation. But the latter operation should be done whenever the character of the growth would permit of its removal with dangers less than those which would be involved by its continuous existence.

3. To those tumors already recognized as demanding operation should be added those of uterine development that were liable to dangerous constriction by the uterine walls, and in which their destruction by this means might induce sepsis.

4. All cases of subserous growths, indolent, yet progressive in character, in which the tumor had become a menace to neighboring organs, should, whether hæmorrhagic or not, be treated by exploratory incision with reference to removal (1) of the appendages, or (2) of the neoplastic organ.

5. All growing tumors, growing in women beyond the menopause, should be removed, if possible, by vaginal total extirpation or, if that was impracticable, by abdominal section.

6. In all distinctly operable cases demanding interference the patient should be advised to submit to an operation at the earliest practicable moment.

The Ætiology and Treatment of Granular Conjunctivitis.—This was the title of a paper contributed by Dr. Francis Dowling, of Cincinnati, in which he stated that the great *rôle* which the disease played in the causation of blindness rendered its successful treatment one of the great desiderata of our day. Its great hot-beds were in some of the countries of the Orient, owing to the prevalence of whirlwinds of sand and the intense heat and glare of the sun. The malady attacked by preference the poorer classes; the rich and well-fed enjoyed a comparative immunity from the disease. It was most frequent in persons between the ages of fifteen and forty-five, and children under six rarely had the disease. It did not become epidemic at a height of over 250 metres above the sea-level, and it lost its contagious character at this height. Low regions and swamps favored its spread. It was highly contagious; probably three fifths of the blindness throughout the world was directly or indirectly due to this disease. There was often some special liability on the part of certain individuals to the contraction of the disease, owing to the presence of a special diathesis, or otherwise.

Treatment.—Personally he had had more success by touching the lids with the mitigated stick of silver nitrate, and then immediately washing it off, than with any other remedy. He applied the treatment usually twice a week, and on the intervening days he rubbed in an ointment composed of yellow oxide of mercury and atropine. He also corrected any trouble of refraction that might exist, for, unless this was attended to, the disease would persist under all kinds of treatment.

The disease was now treated in Paris by completely everting the lid and scarifying the granular tissue, then rubbing in with a stiff brush a 1-to-500 solution of bichloride of mercury. Patients were cured in this way in from four to six weeks that it would take several years to cure with the old treatment. In outbreaks of the disease in orphan asylums, barracks, etc., the afflicted should be completely isolated from the healthy inmates, and their apartments should be kept absolutely clean and fumigated with burning sulphur at least once a week.

Dr. John Bartlett, of Chicago, presented a paper in the form of a **Review of an Obstetrical Work,** published in Paris in 1682 by Paul Portal. He said the older members of the profession had for years rested in the opinion that it was Paul Portal to whom obstetrical science was indebted for the discovery of the fact that in placenta prævia the placenta was attached to the womb, and had not simply fallen down over the mouth of it, as had been taught by writers before his day.

Observations in Urethral Stricture.—Dr. G. Frank Lydston, of Chicago, followed with a paper in which there were many striking original points. The author opposed the general impression prevalent among surgeons that the long duration rather than the severity of a virulent urethritis determined the development of organic stricture. He maintained that this view had been due to fallacious reasoning from the standard of *post hoc ergo propter hoc.* It was not the long-continued urethritis that produced a deposition of the adventitious tissue constituting organic stricture. On the contrary, a chronic localized urethritis existed because the stricture or the foundation of it had been determined at some portion of the urethra by the primary virulent inflammation. He maintained that the liability to the formation of organic stricture was directly proportionate to the severity of the primary inflammation. The localization of stricture, the author stated, was not due, as Sir Henry Thompson and his school asserted, to an obstruction to drainage and the retention of the products of virulent inflammation, but to deficient elasticity or distensibility of the canal at certain points. The conditions determining stricture he compared to those prevailing in a rubber tube about which cords were tied in such a manner that while some actually constricted the tube others simply prevented its distention. If fluid was pumped through a rubber tube thus constricted or restricted, as the case might be, at a certain degree of pressure and at certain intervals, friction occurred at these points and a continual unrest. The epithelium was rapidly removed, its vitality being impaired by the virulent poison of urethritis. By and by rapid removal and reformation of epithelium became a cell habit, the resulting formation of cells being of a low grade of inherent vitality. In addition to this change upon the surface of the mucous membrane there were deposited young connective-tissue cells in and about the affected point as an evidence of an attempt on the part of Nature to secure rest and prevent strain. These cells the author likened to sand-bags thrown up to strengthen or prevent a breach in a fortification.

He called attention to a number of interesting reflex phenomena incidental to stricture of the urethra. He also went exhaustively into the various toxæmic conditions incidental to renal disturbance secondary to stricture, and to that peculiar form of toxæmia incident to the absorption of ptomaines from the site of the urethral lesion. He went into the subject of electrolysis and absolutely denied the possibility within the limits of safety of using it in the treatment of organic stricture. He condemned the routine and extreme claims of Newman, and also the other extreme as represented by Dr. Keyes, who asserted that so-called electrolysis had absolutely no effect. The reader maintained that the effect of galvanism upon organic stricture of the urethra was the same in its physiological character as upon healthy or morbid tissue in any other situation. He described what he termed *plus* conditions of organic stricture. Thus we had ingrafted upon the organic foundation varying degrees of hyperæmia, spasm, and œdema, one or all. These *plus* conditions galvanism, properly applied, would subtract from the organic condition in certain cases, and in so far as this effect was marked the stricture would be benefited. The author denied the possibility of the galvanic current producing absorption of fibro-connective tissue after it had arrived at the acme of differentiation, if used in any strength which would not destroy the mucous membrane itself; in other words, we could not control the galvanic current so that it would exert a selective action and remove the abnormal tissue while sparing the normal tissue.

Election of Officers.—The following officers were elected: President, Dr. C. A. L. Reed, of Cincinnati; Vice-Presidents, Dr. C. S. Bond, of Richmond, Ind., and Dr. Thomas Hunt Stucky, of Louisville; Secretary, Dr. E. S. McKee, of Cincinnati; Chairman of the Committee of Arrangements, Dr. Joseph Ransohoff, of Cincinnati. Place of next meeting, Cincinnati, in October, 1892.

Miscellany.

Experimental Diphtheria.—The *Johns Hopkins Hospital Bulletin* for August contains a preliminary communication entitled The Histological Changes in Experimental Diphtheria, by Dr. William H. Welch and Dr. Simon Flexner. Oertel's well-known observations concerning peculiar histological changes in the internal organs in human diphtheria, the authors remark, make it important to determine whether similar alterations occur in animals inoculated with the Klebs-Loeffler bacillus of diphtheria. If such changes are found in the latter cases, they add valuable proof to the demonstration that experimental diphtheria is essentially identical with human diphtheria. Previous observers of the experimental disease have not confirmed fully the results obtained by Oertel in his study of the disease in human beings. Welch and Flexner used for their experiments guinea-pigs, rabbits, and kittens, and their work was conducted with the view of determining the histological alterations in all the organs of animals dead of experimental diphtheria. The animals were inoculated in the subcutaneous tissue of the belly wall or in the trachea. The gross anatomical lesions which the authors observed corresponded for the most part with those described by other investigators. At the seat of inoculation there was a grayish, necrotic, pseudo-membranous focus, and surrounding this a deep-red zone of varying size, and the underlying muscle of the belly wall was greatly congested. There was extensive subcutaneous œdema, often hæmorrhagic and usually of an exquisite gelatinous character. The subcutaneous lymph glands of the axillary, inguinal, and cervical regions were hæmorrhagic and swollen. The peritoneal cavity contained an excess of fluid; both the visceral and parietal layers of peritonæum were injected and ecchymoses were sometimes present. The mesenteric and retroperitoneal glands were enlarged and often reddened. The organs were not unaffected. The liver was congested, at times evidently fatty. In guinea-pigs and kittens the liver showed numerous macroscopic whitish lines and dots on the surface and penetrating the substance of the organ. The spleen was enlarged sometimes, at other times not. The adrenals always showed an intense congestion. The intestinal lymphatic apparatus, especially the agminated glands of the cæcum and ileum, were abnormally prominent. The pleural cavity contained an excess of fluid. The mediastinal glands were swollen and reddened, the bronchial glands also. The heart appeared normal, while the lungs showed areas of congestion and even of consolidation. The thyreoids were uniformly congested. The organs were studied microscopically. Bacilli were found regularly in the seat of inoculation, but never in the blood and tissues. The local action of the bacilli is of the most intense character. There were emigration and great destruction of leucocytes, shown by disintegration of their nuclei; the nuclei of connective tissue and muscle had succumbed, and there was fibrin in these areas. The lymph glands of the axillary and inguinal regions were greatly affected, as were the lymph glands remote from the seat of inoculation, also the spleen. There were hæmorrhages under the capsule and into the substance of the glands. The cells of the glands were most affected. The principal lesions were in the lymph follicles, the lymph cords and sinuses being also affected, though in lesser degree. The lesions consisted of a fragmentation of the nuclei of the parts affected, the final change being a conversion of the cells of the parts into a substance resembling fibrin. The cells of the intestinal villi and the epithelium of the intestinal mucous membrane were similarly affected. The liver was excessively fatty; corresponding to the lines and dots there were areas of necrotic, hyaline liver cells; hæmorrhages under the capsule were common and there were deep-seated hæmorrhages into the lobules originating in the central veins. The kidneys were fatty; there was a hyaline alteration of the glomerular capillaries and small arteries and fragmentation of the glomerular and tubal epithelium. The lungs contained extravasated blood, areas of bronchial pneumonia, and fragments of nuclei—the latter on a smaller scale. The heart was the seat of a fatty degeneration, more or less intense, in nearly every case. A change was noticed in the nuclei of the muscle fibers in certain cases. It consisted of a fragmentation similar to that in other parts. The muscles adjoining the lymphatic glands of the axillary and inguinal regions showed necroses and wandering in of large numbers of leucocytes. Cultures from the liver, kidney, spleen, and blood gave negative results; from the seat of inoculation, bacilli were always obtained.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for November 6th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
Chicago, Ill	Oct. 31.	1,099,850	....	44	..	..	..	..	..	42	11	32	2	1
Philadelphia, Pa	Oct. 24.	1,046,964	407	56	..	..	..	.	..	4	5	37	1	1
Boston, Mass	Oct. 21.	448,447	181	25	..	..	..	..	..	9	..	11	..	....
Cincinnati, Ohio	Oct. 30.	296,908	137	11	.:	..	..	..	..	8	7	9	..	....
Cleveland, Ohio	Oct. 24.	261,343	87	10	..	..	..	..	..	3	..	3	..	....
Cleveland, Ohio	Oct. 31.	261,343	103	....	..	..	..	..	..	3	..	6	..	....
New Orleans, La	Oct. 10.	242,039	109	12	..	..	..	..	..	1	..	1	..	....
New Orleans, La	Oct. 17.	242,039	107	15	..	..	..	..	..	..	..	6	..	....
Pittsburgh, Pa	Oct. 24.	238,617	68	....	..	..	..	..	..	2	1	13	..	....
Pittsburgh, Pa	Oct. 31.	238,617	100	....	..	.	..	..	..	10	2	18	1	1
Washington, D. C	Oct. 24.	230,392	113	12	..	..	..	..	..	7	..	8	..	....
Milwaukee, Wis	Oct. 31.	204,468	75	3	..	..	..	..	..	1	..	12	..	1
Minneapolis, Minn	Oct. 31.	164,738	47	..	..	..	..	..	..	2	..	7	..	....
Louisville, Ky	Oct. 24.	161,129	62	3	..	..	..	..	..	4	..	7	..	....
Louisville, Ky	Oct. 31.	161,129	53	8	..	..	..	..	..	6	..	7	..	....
Rochester, N. Y	Oct. 31.	133,896	55	8	..	..	..	..	..	2	..	5	..	1
Providence, R. I	Oct. 31.	132,146	38	....	..	..	..	..	..	2	..	1	..	....
Toledo, Ohio	Oct. 30.	82,652	23	....	..	..	..	..	..	2	1	6	..	....
Richmond, Va	Oct. 31.	81,388	37	3	..	..	..	..	..	1	..	7	..	....
Nashville, Tenn	Oct. 31.	76,168	25	5	..	..	..	..	..	2	..	..	..	1
Fall River, Mass	Oct. 30.	74,398	25	1	..	..	..	..	..	2	..	..	..	....
Erie, Pa	Oct. 31.	40,634	15	2	..	..	..	..	..	1	..	3	..	....
Binghamton, N. Y	Oct. 31.	35,005	13	2	..	..	..	..	..	4	..	2	..	....
Portland, Me	Oct. 31.	33,810	13	....	..	..	..	..	..	2	..	..	..	....
Yonkers, N. Y	Oct. 31.	32 033	7	....	..	..	..	..	..	..	1	1	.	....
Mobile, Ala	Oct. 31.	31,076	24	4	..	..	..	..	..	3	..	2	..	....
Galveston, Texas	Oct. 16.	29,084	11	1	..	..	..	..	..	1	..	..	..	....
Auburn, N. Y	Oct. 24.	25,858	7	1	..	..	..	..	..	..	..	..	..	....
Auburn, N. Y	Oct. 31.	25,858	5	....	..	..	..	..	..	1	..	..	..	....
San Diego, Cal	Oct. 24.	16,159	1	....	..	..	..	..	..	..	..	..	..	....
Rock Island, Ill	Oct. 25.	13,694	5	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla	Oct. 24.	11,750	8	....	..	..	..	..	..	..	..	..	..	....

The Simple Extraction of Cataract.—At a meeting of the Philadelphia County Medical Society, held on October 28th, Dr. Edward Jackson read the following paper:

The old flap operation for the extraction of cataract, when it was successful, was one of the brilliant triumphs of operative surgery. The trouble with it in the old time, before the day of Graefe, was, that it was successful in only a minority of cases. The real achievement of the last few years with reference to it has been the increasing of the percentage and the perfection of its successes, until they have surpassed anything achieved by other operations for cataract extraction. This has been brought about by collateral advances in medicine and surgery that have given us an understanding of sepsis and asepsis, of the myotic power of eserine and its allies, and of the anæsthetic and other powers of cocaine.

My purpose in this paper is to discuss the operation of "simple extraction" as I practice it, with the reasons for choosing certain procedures rather than others, and to make some comparison of the results of the method with modified linear extraction, or modified Graefe method, which it has largely replaced.

The corneal section is made upward, mainly because it seems to me that the wound in this position is much better protected beneath the closed lids from either infection or the relative displacement of its lips than it can be with the downward section. It is made in the clear cornea, sometimes as close as it can be to the limbus without encroaching on it. It is parallel to the corneal margin, the plane of the knife making it being parallel to the plane of the periphery of the iris. It is made to include nearly, and sometimes quite, half of the circumference of the circle of which it is a part. The exact position of the section and its length are determined by the size of the cornea and the supposed size of the lens. The plane of the section should be well in front of the iris, for the risk of prolapse of the iris is thereby greatly lessened; yet the incision must be long enough to permit the escape of the lens. The section is made with the knife described by me in the *American Journal of the Medical Sciences* for March, 1888, for the reasons there given, that it combines to a large extent the manageableness of the Graefe knife with the smooth incision of the Baer's knife. Usually the incision is almost completed by the forward thrust, the cutting edge being carried by it out of the anterior chamber, and the remaining bridge of corneal tissue severed as the knife is withdrawn.

The capsulotomy is made with the point of the knife used in making the corneal section, and is about in the plane of the corneal section, as the lens lies against the cornea after the escape of the aqueous. I have in a few cases opened the capsule before completing the corneal section, as the point of the knife was carried across from the puncture to the counter-puncture. This was done in the fear that after the escape of the aqueous the pupil would contract so that it would be difficult or impossible to make a sufficient laceration of the capsule without wounding the iris with the knife point. Such a manœuvre, however, required a slight change in the direction of movement, and prolonged a little one of the most critical periods of the operation. It was given up on finding that a sufficient opening in the capsule could always be made through the pupil after the completion of the corneal section. The opening that it is necessary to make in the capsule is really quite small; a slit 4 or 5 mm. long is quite sufficient, probably because, when the solution in the continuity of the capsule is once started it extends quite readily, as widely as is needed, under the pressure of the lens during the stage of its delivery.

The advantages of this method of opening the capsule are that by it we get rid of one instrument, the cystotome—an instrument hard to keep clean at the shoulder from which the pricking point projects, hard to get and keep perfectly sharp, liable from its shape to catch and damage the cornea or iris in case of sudden movement while it is in the eye, and which I have seen more than once, by its direct backward pressure, dislocate the lens and allow the escape of vitreous. Then the small opening in the capsule nearly in the direction of the corneal section seems to have a decided influence in making sure of the proper rotation and presentation of the lens in the corneal wound; cortical matter as well as nucleus has a perfectly direct avenue of escape; and, if cortical matter remains after the nucleus has been extracted, it remains inside the capsule, and not in the anterior chamber, where it would exert its well-known deleterious influence on the iris or, as some have supposed, furnish an especially favorable culture medium for the pathogenic bacteria introduced on the shank of the cystotome or along a path of capsule incarcerated in the corneal wound. Again, with this method of opening it, there is no chance that portions of the capsule will prolapse or become incarcerated in the wound, and so complicate the healing and endanger the ultimate result more insidiously, but quite as seriously, as prolapse or incarceration of the iris.

This method of opening the capsule has this disadvantage, that when the pupil contracts, as it does in the process of washing out the anterior chamber, the iris sometimes entirely covers up the rent in the capsule and makes it much more difficult to dislodge any remaining cortical matter. Under these circumstances, it is best to make no effort to dislodge it, for, in my experience, cortical matter *left within the capsule* after the removal of the lens nucleus is innocuous, and is certain to be removed by absorption in a few weeks at the furthest, causing some delay in the full restoration of vision and detracting from the brilliancy of the operation, but in the end giving the patient the best result.

The delivery of the lens is effected by making pressure with a lens spoon backward on the lower portion of the cornea, and with a corneal spatula slightly downward upon the upper ciliary region, causing the lens to be pushed into the pupil and engage in the corneal wound, the movement of the lens being steadily followed by a slight upward movement of the spoon, and the necessary pressure never relaxed until the greatest thickness of the lens has passed through the corneal section. It is of the utmost importance that the pressure be maintained steadily; any intermitting of it that causes the lens to alternately advance and retreat is liable to bring about the displacement of the lens, and the presentation of the vitreous in its stead. After the nucleus has escaped, the pressure is gently continued until any evident masses of cortex have also been extruded, and then withdrawn.

Washing out of the anterior chamber I have practiced after the method and with the apparatus of Dr. Lippiucott, of Pittsburgh, for the last year, as the principal step in the operative toilet. If the iris has prolapsed, the stream of boric-acid solution is the simplest and best repositor, its effect being to carry the iris into position, and at the same time to provoke a marked and very satisfactory contraction of the pupil. If the opening in the capsule remains freely accessible, the current may be directed into it and all lenticular *débris* removed. But if this is not readily accomplished, I content myself with a thorough washing out of the anterior chamber, at the end of which the pupil is found small and central—stroking of the iris with the spatula, or poking into the angles of the corneal wound to dislodge incarcerated iris or capsule, being thus dispensed with.

Eserine is instilled after the washing of the conjunctival sac, although usually the effect of the irrigation of the anterior chamber has been to already secure a small central pupil, in order that this contraction of the pupil may be maintained and the iris drawn as far as possible away from the cornea. In a single case in which I omitted the use of eserine a slight prolapse of the iris appeared at the end of thirty-six hours. Eserine was then used, and the prolapse promptly reduced. Later, however, it again appeared, and the pupil was left somewhat distorted.

Simplicity.—As compared with the Graefe method and its modifications, "simple extraction" deserves its name, in that the iridectomy that it dispenses with is the most painful and one of the most delicate portions of the former operation, and that the uninjured iris is more readily reduced and kept wholly within the eye than the iris that has lost the tensile action of its sphincter. It prevents the extremely insidious accident of incarceration of the capsule. Again, the dangers of that serious complication—prolapse of the vitreous—are reduced to a minimum. Without rough handling, or especially unfortunate movement of the eyeball, it is scarcely possible for this accident to occur before the nucleus is delivered. Even in a case of dislocated lens with fluid vitreous the delivery of the lens was readily effected without the use of a spoon or loop, and no vitreous was seen until this had been accomplished.

Ease.—The statement is usually made that with simple extraction the delivery of the lens is slightly more difficult. But, in my experience, this is true only to a slight extent as to the complete removal of the cortical matter. The delivery of the nucleus is not to any notable extent more difficult. I operated yesterday in a case where the lens was particularly large and the cornea small. From the other eye, in which the conditions were precisely similar, I had removed the lens several months ago, after a preliminary iridectomy, with a good deal of difficulty. The simple extraction was, if anything, the easier one. After the first operation a considerable amount of cortex remained in the capsule, and the same thing occurred with the second. Still, the removal of all remaining cortex is, I believe, a little more difficult after the simple extraction, though certainly not more dangerous.

Prolapse of the Iris.—The danger of this complication is the greatest drawback on simple extraction—about all that keeps it from being an ideal operation. When any considerable prolapse occurs it causes a distorted pupil, is liable to delay the healing, is followed by unusually high astigmatism, and, if very large, might endanger the eye. The impression is abroad that it is very much more likely to happen after simple extraction than after extraction with iridectomy; at least it is scarcely counted as one of the risks of the latter operation. But iridectomy does not prevent the occurrence, except of the part of the iris that has been removed. Indeed, in so far as it removes the restraining influence of the iris sphincter and leaves angles of iris floating within the eye, iridectomy directly favors incarceration, the form that prolapse assumes after it. Knapp has recently reported statistics of about five hundred cases of simple extraction, with prolapse of the iris in eight per cent. of the cases. It is probable that incarceration of a part of the iris at the angles of the wound is about that common among Graefe's extractions. In my own work prolapse has not been more common after simple extraction than was incarceration after iridectomy. More than this, the great mass of cases of prolapse under the use of eserine flatten down and cause as little trouble as the incarcerations after iridectomy, and do this without excision or any other special treatment, without notably delaying the healing, and, so far as can be judged, without any additional ultimate danger to the eye. I speak thus particularly about prolapse of the iris, for it was fear of it that kept me for a considerable time from giving up iridectomy. Still, prolapse of the iris is the chief danger of the method, and it should be carefully guarded against by the use of eserine, by keeping the patient as quiet as possible, by avoiding any pressure of the dressing or through the dressing on the globe, and by placing the corneal section as far away from the iris as possible compatibly with making it large enough to permit the escape of the lens.

Visual Acuteness.—The principal advantage of the simple operation is the exclusion from the eye of a large amount of very imperfectly focused light, and the retention of the power of adapting the eye promptly and fully to the varying intensity of the light to which it is exposed. This advantage, although shown partly by statistics of visual acuteness, can never be fully exhibited in that way. An eye may be able to decipher even the smallest test-types, although their image on the retina is ingulfed in a flood of unfocused light coming in through distorted portions of the cornea opposite the coloboma left by an iridectomy. But, even with only the ability to make out the same type, the vision secured by the exclusion of this useless and confusing excess of light is, for all practical purposes, far superior.

Again, we find in age the retina habitually guarded against even the light admitted to the younger normal eye by a diminished pupil; and the reversal of this, the flooding of the senile eye, with its slower nutritive processes, with an amount of light largely in excess of what it has been accustomed to, especially the crippling of its power to defend itself against sudden increase of illumination, can not but diminish its power of resistance to unfavorable influences and lead to ultimate deterioration of vision.

It was watching the gradual deterioration that occurred in certain eyes that had been subjected to extraction, with iridectomy, that first made me desirous of trying the simple method.

Indications for Iridectomy.—I am not aware of any operator who proposes the abandonment of iridectomy in all cases. It is pretty certain that in at least one class of cases all will continue to practice it—namely, those in which, from iritic adhesions or from other causes, the pupil is extremely rigid and undilatable. The other indications for it are not so well agreed upon, but probably one of the most important of them is extreme restlessness and insubordination on the part of the patient. All of my cases of prolapse have been in patients markedly of that character. For the present most of us will be apt to fall back on iridectomy for a number of reasons, as I did in a case about a week ago, where there was reason to suspect a large lens and saccharine diabetes, so that I feared sloughing from a large corneal flap. But with myself, as with many others, the present tendency is to do iridectomy less and less frequently, and it is probable that the cases in which it is either necessary or desirable will ultimately be found to be few and far between.

Pental.—According to the *British and Colonial Druggist*, this name has been given to a new anæsthetic. "It is produced in Germany, its inventor being Professor von Mering, Director of the Medical Policlinic in Halle, who chose the name he has given it owing to the circumstance that it contains five carbon atoms. It is very volatile and easily combustible. It can, it is said, be administered exactly like chloroform, and the quantity required each time need cost no more than 6*d*. Anæsthesia set in after three or four minutes, rarely later. It is not deep, but suffices to render small operations, such as the extraction of teeth, painless. It is neither accompanied nor followed by any unpleasant effects."

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THE NEW YORK MEDICAL JOURNAL, November 21, 1891.

Original Communications.

SYRINGOMYELIA AND ALLIED DISEASES.

WITH THE HISTORY OF A CASE AND CONSIDERATION OF THE PATHOLOGY, SYMPTOMS, COURSE, AND DIAGNOSIS.

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The presence of cavities in the spinal cord has long been known, but only within the last ten years have they been considered other than pathological curiosities and their relation to certain clinical symptoms shown.

Cavities appear in the spinal cord under two different conditions: First, a hydromyelus, a dilatation of the central canal extending the whole length of the cord, and at times into the ventricles of the brain. This condition is found as a part of a hydrocephalus; it is also at times of congenital origin, being the result of an embryonic arrest of development, and, as far as known, causes no symptoms during life. The wall of the cavity in the cord is here lined by cylindrical epithelium. Second, cavities are found in the spinal cord as the result of the growth, and occasionally of the softening and breaking down, of a pathological tissue invading the substance of the cord and causing the clinical picture of the disease known as syringomyelia.

Pathological Anatomy.—The cord when removed from the spinal column has lost its regular contour; the cervical enlargement, which is the part earliest and most often affected, is smaller or larger than normal, irregularly circular or flattened in shape, and the parts above and below this portion are similarly altered, according as they are more or less involved. The affected part is soft in consistence and, if much breaking down of the new tissue has occurred, may be elastic to the touch. This same gross appearance may involve a larger portion of the cord, or be limited to the cervical enlargement only. The medulla and pons may be similarly changed. Cross-section of the affected parts shows that it is the gray substance which is primarily and principally involved. Instead of the normal gray matter of the anterior and posterior horns, there is replacing it wholly or in part a new tissue in whose center a smaller or larger cavity is visible, the contents of this cavity being fluid or semi-fluid in consistency. The new tissue occupies the central part of the gray matter of the cord, extends into one or both anterior or posterior horns, and compresses or invades more or less of the white matter of the cord. The boundary line between the pathological and normal tissue is well defined, and visible to the naked eye.

The involvement of the spinal cord is different at different levels, and there may be one or more cavities connecting or entirely separated from each other or connecting with the central cavity, extending upward and downward, having at one or several levels spindle-shaped dilatations or small pouch-like projections. If the tissue has not undergone softening, no cavity may be found.

Microscopical examination shows the new tissue to be composed of spindle-shaped and oval cells, associated with filaments arranged in strands between and around numerous blood-vessels, which are surrounded by a close-textured, sparingly nucleated sheath of neuroglia filaments. The new cells are glia cells, and granular, rounded, or spindle-shaped, non-branching cells resembling sarcoma cells. Many of the blood-vessels show degenerated walls and contain hyaline thrombi. In the degenerated areas toward the center are found fluid, fibrin, blood pigment, and disintegrated tumor cells. If the anterior horns of the cord be involved in the process, degeneration, atrophy, and disappearance of the ganglion cells occur, with consequent degenerative changes in the peripheral nerve fibers. When the white matter is involved, ascending and descending degeneration of the different tracts of the cord occur. The process begins around or near the central canal, and extends peripherally, involving the central gray matter; from thence it spreads posteriorly to the posterior horns and the posterior columns, or anteriorly into the anterior horns, and even into the lateral columns.

Regarding the origin of the disease, according to one set of writers, there is present a congenital anomaly, a hydromyelus, and the gliomatous infiltration follows upon this; while, according to another set, there is no congenital anomaly present, the gliomatous process is primary, and the dilatations found are the result of the new growth or its fluidifying. Both these views are probably correct, as examination shows numerous cases where hydromyelus was probably primary, and others where no evidence of congenital abnormity could be found.

Clinical Symptoms.—From what has been said regarding the varying extent of the lesion, it is evident that the symptoms will vary in different cases, but certain symptoms are common to all cases, and, after relating the history of a case observed during the past year, the individual symptoms will be considered more in detail:

Robert D., forty years of age, born in England, married, and a waiter by occupation, applied at the Vanderbilt Clinic in April, 1891, complaining of muscular weakness of the right hand and of difficulty in walking. The following history was obtained from him: His father died of heart disease; otherwise his family history is negative. He has had neither syphilis nor rheumatism, but has been a moderate drinker. He considered himself well until two years ago, when he suffered for a short time from severe left supra-orbital neuralgia, which yielded to treatment, and he felt in the best of health until his present trouble began, about fourteen months ago. At this time he noticed some stiffness of the right upper arm, together with numbness of the fingers of the right hand and inability to grasp small objects. With these symptoms there was constant dull aching of the whole arm. The numbness gradually extended up the arm on to the shoulder, the right side of the neck and lower jaw, and downward upon the same side of the thorax. Seven months ago there were added stiffness and weakness of the right leg, with some numbness of the same. About the same time the patient noticed a drooping of the right side of the face, and in this part experienced the feeling as if the skin were swollen and tense; this feeling still continues.

Six months ago he found that he often burned the fingers of his right hand with a lighted cigar-end without pain, and that he was able to carry much hotter dishes in this hand than in the other. Three months ago, while walking in the street, he tripped, and, on account of the disability of his leg, was unable to recover himself and fell to the ground, and, on attempting to rise, found that his ankle was broken. Since then the disturbance in gait has been more marked. For some months there has existed impotentia coeundi. For the past two months there has been a constant discharge of thin, glairy mucus from his nose, especially marked on the right side, and he thinks the tear secretion of the left eye is increased. The loss of power in the right arm has been slowly but steadily progressive. Taste and sight are normal. His bladder and rectal functions are normal. His general health is of the best, he says, and his only complaint is the loss of muscular power. Examination shows a large-boned man, five feet seven inches in height, with the skin rather pale, but he is fairly well nourished. The heart and lungs show nothing abnormal, nor do the abdominal viscera. The tongue is clean, the pulse soft and seventy-four beats to the minute.

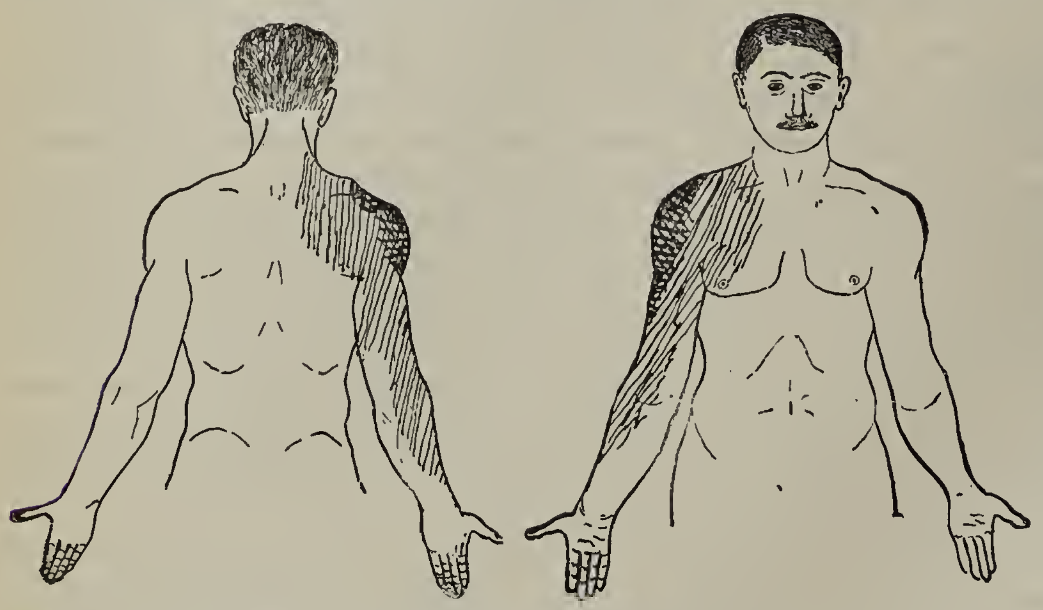

FIG. 1.—The lightly shaded area is that of diminished sensibility to pain; the heavily shaded area, that of complete analgesia.

Examination of the Muscles.—Right Arm.—The thenar and hypothenar muscles are atrophied greatly, as are those of the first interphalangeal space. There is marked atrophy of the muscles of the forearm, more especially of those on the ulnar side. There is slight atrophy of the deltoid, of the pectorales, of the supraspinatus and infraspinatus, and of the right side of the trapezius.

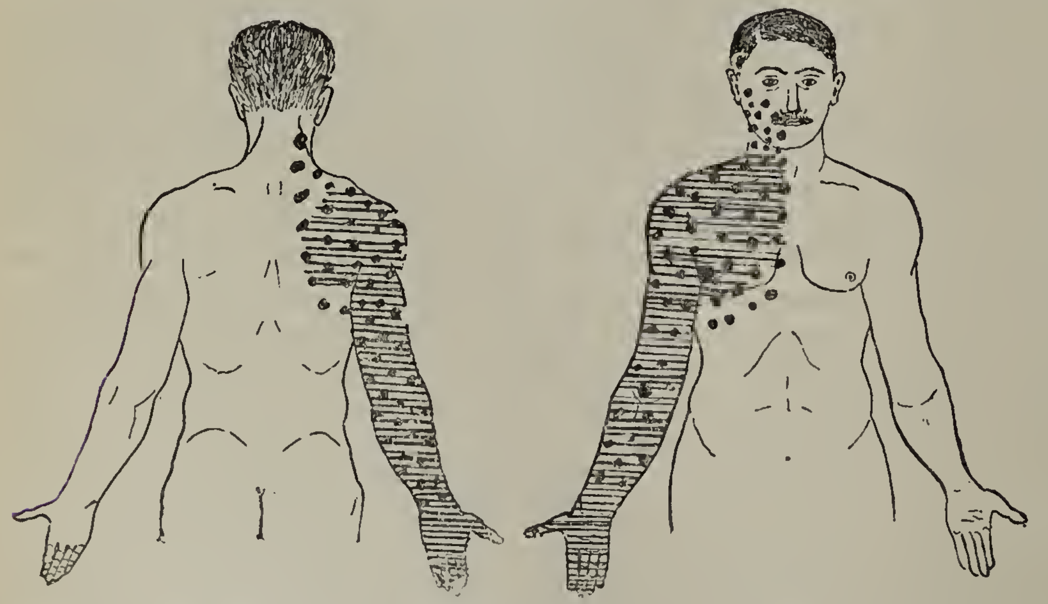

FIG. 2.—The dotted area is that of impaired tactile sensibility; the shaded area, that of loss of thermal sensibility.

The muscles of the whole right upper extremity are soft and flabby. Fibrillary twitchings are to be seen and felt in the portions of the thenar and hypothenar muscles remaining, and also in the deltoid. The temperature of the hand and arm is apparently higher than that of the left side.

Left Arm.—There is slight atrophy of the muscles of the ulnar side of the hand and of the thenar eminence. Fibrillary twitchings are to be seen in these muscles.

Electrical Reaction.—Nowhere is there complete loss of faradaic contractility, but response is slow and vermicular, especially in the outer part of the triceps, the anterior portion of the deltoid, the infraspinatus, the thenar muscles, and those of the ulnar side of the forearm of the right arm. In the left hand the thenar muscles show a similar change of electrical reaction. The muscles of the rest of the body are normal in reaction.

Reflexes.—The plantar and cremasteric reflexes are normal. The knee-jerk of the right side is greater than that of the left, and there is right ankle clonus which is not present on the left side. There are no tendon reflexes to be obtained in the upper extremities. The pupils are equal and react to light. The nails of the fingers of the right hand are thickened and slightly ridged, especially that of the thumb.

Cutaneous Sensation.—There is slight diminution in tactile sensation (see Fig. 2) over the skin of the whole right arm, on the right side of the chest over an area extending as far down as the sixth rib in front and at the same level on the back. The upper limit of this area is on the back, at the level of the third cervical vertebra. It extends around on to the right side of the neck and face, its upper limit being a line joining the angle of the mouth and the outer angle of the orbit on the right side.

Thermal Sensation (see Fig. 2).—Over the whole arm and on the right side of the chest in front as far as the middle line, and limited above by a line passing horizontally through the cricoid cartilage, and below by the level of the nipple, and behind, over the scapula, is an area within which there is a loss of appreciation of both heat and cold.

Pain Sensation (see Fig. 1).—There is great diminution in pain sense over the whole upper arm, on the upper two thirds of the radial side of the forearm, both front and back, the anterior surface of the thorax on the right side as far down as the third rib, and over the scapular area behind on this side. The upper limit of this area is at the level of the fifth cervical vertebra. Over the skin of the deltoid muscle there is complete analgesia. The fingers and palm of the right hand still retain their pain sense.

November, 1891.—The thermanæsthesia has extended to the left arm, and there is some diminution of the pain sense over the upper part of this arm and on the left side of the neck.

The history of the case and the results of the examination present the clinical picture of the disease known as progressive muscular atrophy, to which are added vaso-motor, trophic, and sensory disturbances, the latter being loss of pain sense, inability to distinguish heat and cold, and slight impairment of tactile sensation.

Comparing the history of the case and the objective examination with the present knowledge of spinal-cord localization,* it is probable that the morbid process began at the level of the fifth cervical segment; that it involves here the cells of the anterior horn of the right side (deltoid atrophy). That the central and intermediate gray matter are involved is shown by the vaso-motor and trophic disturbances, and the disturbances of sensation point to involvement of the posterior horns of the cervical enlargement. The process has extended upward as high as the fourth cervical segment of the cord, as shown by the sensory disturbance as high as the lower jaw.

Beginning at the fifth cervical segment of the cord, the process has extended downward, involved the greater part of the gray matter as far as the first dorsal segment, and the sensory part of the gray matter as far as the middle dorsal segment. The presence of the epigastric reflex shows that the anterior horns of the upper dorsal segments are as yet not involved.

The increased tear and nasal secretions and the feeling of tension on the cheek (sensory disturbance in the distribution of the trigeminus) point to beginning involvement of the medulla.

The symptoms may be classed under two heads:

1. Trophic and vaso-motor disturbances.
2. Sensory disturbances.

1. *Trophic and Vaso-motor Disturbances.*—As a rule, the trophic disturbances are the first symptoms of the disease, and the atrophy of the thenar and hypothenar muscles, followed by that of other hand muscles, with the consequent impairment of the finer muscular movements, calls the attention of the patient to the fact that something is wrong. This atrophy extends upon the forearm, or involves next the shoulder muscles or the small muscles of the other hand; thence, after more or less of the muscles of the upper extremity have changed, the affection may spread upward in the cord, through the cervical region, or, more often, downward through the dorsal region, compressing or extending into the lateral columns, causing symptoms of spastic paralysis of the lower extremities, and, if the process reach as far as the lumbar region, disturbances of bladder and rectal functions and atrophy of the muscles whose ganglion cells are situated in this part.

Other trophic disturbances—such as the formation of wheals on the skin and ridges in the nails with abnormal brittleness of the same, the development of panaritia, thinning and friability of the long bones, and in advanced cases bedsores—are found more or less marked. Coldness and blueness of the skin of the affected extremity, changes in the secretion of the sweat, increased secretion of tears, salivation, or increased nasal secretion, show the involvement of the vaso-motor nerves.

2. *Sensory Disturbances.*—Coincident with, preceding, or following the development of the trophic disturbances, sensory symptoms appear.

Pains, usually dull, aching, drawing, or severe boring in character, are complained of; exceptionally these may be sharp neuralgic in kind. With these, the patient complains of numbness and formication, and, if the dorsal or lumbar region be affected, the girdle sensation is often added. In a few cases no subjective sensory disturbances are present.

Disturbances of Temperature Sense.—These are characteristic of the disease, and, as usually observed, there is loss or great diminution of the appreciation of heat and cold over the areas of the body supplied by the nerves from the affected segments of the cord. This disturbance is at times unequal in degree over different areas of the skin; over some actual loss, while over others slight or well-marked change, is found. Both heat and cold are usually equally affected; but one case, with autopsy, is on record where heat-sensation alone was lost, that for cold being retained and normal. (Déjérine, *La Semaine méd.*, No. 6, 1891; séance de la Société de biologie, Jan. 31, 1891.)

Disturbance of Pain Sense.—Coincident with the thermanæsthesia, analgesia, more or less complete, is found in the affected parts of the body, and this, together with the loss of temperature sense, allows of frequent and mutilating injuries of the fingers and arms, and in most cases evidence of this is found in the scars and loss of tissue of the affected members.

Tactile Sensibility.—In the very large number of cases tactile sensibility is unaffected, and the dissociation of sensory disturbances forms one of the characteristic marks of the disease; but many cases are on record where tactile sensation has been altered even to complete loss, but this latter condition must be considered the exception.

Other Symptoms.—Hoarseness from laryngeal paralysis, difficulty in swallowing, paralysis and atrophy of the tongue, loss of smell and taste, may after a time be added and point to involvement of the medulla and pons.

Scoliosis is present in many cases, due to the loss of the opposing action of the paretic and paralyzed muscles on one side of the spine, or, as is also believed, as the result of trophic changes occurring in the vertebræ.

Fibrillary tremor is present in the atrophic and paralyzed muscles.

The lungs, heart, kidneys, and digestive organs present no symptoms referable to the disease; there may be difficulty in micturition with constipation when the lumbar enlargement of the cord is affected.

Psychical symptoms are not seen as a part of the disease unless hysteria or mental disease is present, and to hysteria is to be ascribed the diminution in the visual field noted in some cases.

Reflexes.—The skin reflexes of the affected segments are lost early and are of use in localizing the seat and extent of the affection in the cord.

The deep reflexes are lost in the arms from the involvement of the cells of the anterior horns of the cervical segments. The deep reflexes of the leg are diminished or lost when the cells of the anterior horns of the lumbar enlargement are involved, and increased when the lateral columns are affected, or normal when these parts entirely escape.

Finally, it is to be mentioned that no symptoms may be present referable to the disease, and the trouble is only found at autopsy.[*]

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* Starr. *Familiar Forms of Nervous Diseases.* William Wood & Co., 1890.

Onset and Course.—The onset may occur in two ways:

1. With preponderating trophic disturbances—so-called Morvan's disease.[†]

These cases are characterized by the development of successive panaritia, with a tendency to loss of bone substance, producing characteristic deformities and accompanied or followed by analgesia and thermanæsthesia, and the mutilations consequent thereto; to these symptoms are also added paresis of the muscles of the hand and forearm; both upper extremities are involved. This class of case may never advance, or there may be added the symptoms present in the spinal muscular atrophy type, or the first symptoms may be those of the—

2. Spinal muscular atrophy type.

The onset is slow, beginning with atrophy of the thenar and hypothenar muscles, and preceded or accompanied by pains or paræsthesiæ. The atrophy extends up the arm or skips to the shoulder muscles and thence to other parts of the body. To these symptoms are added, sooner or later, trophic disturbances of the skin, nails, etc., usually not to a marked degree. The mutilations due to the analgesia and thermanæsthesia appear as in the other cases.

Some cases may follow this type, the first symptom appearing in the small muscles of the foot and extending up the leg,[‡] or other leg muscles are first involved.[#] As the disease progresses, the atrophy of the muscles extends over a large part of the body, the cranial nerves may become affected, difficulty in swallowing appear, and the area of sensory disturbances gradually increases in extent. If the process extends to the upper cervical region, respiratory difficulty appears, and if the lumbar enlargement becomes affected, urinary and rectal symptoms are added, cystitis and bedsores develop, and the patient dies of exhaustion, broncho-pneumonia, or pyæmia.

As a rule, the course of the disease is extremely chronic and may last from twenty-one months[‖] to over twenty years.[△]

Prognosis.—The disease *per se* is incurable, and, if the patient is not carried off by some fatal intercurrent disease, finally proves fatal from respiratory paralysis, broncho-pneumonia, cystitis and consequent pyæmia, exhaustion from bedsores, or the disease itself.

Diagnosis.—From progressive muscular atrophy it is distinguished by the presence of sensory and vaso-motor symptoms; from amyotrophic lateral sclerosis by the absence of the reflexes in the arm, and the presence of trophic disturbances of the skin and vaso-motor and sensory symptoms; from poliomyelitis anterior chronica, by the absence of sensory symptoms.

From peripheral neuritis it is distinguished by the more rapid onset of the disease and by the absence of dissociation of the sensory symptoms and of fibrillary twitchings in neuritis.

From anæsthetic leprosy it is distinguished at times with difficulty, but the history of exposure to leprosy, the presence of characteristic lepra nodules on other parts of the body, the presence of mutilations of the extremities, and the neuritis accompanying some cases of leprosy will serve to distinguish the disease.

From hysteria with sensory disturbances it can be distinguished by the changing character of the symptoms.

From pachymeningitis cervicalis chronica it is at times distinguished with difficulty, but the local spinal tenderness and the absence of the characteristic dissociation of sensory symptoms will suffice.

From hæmorrhage into the substance of the spinal cord (hæmatomyelia), the history of injury in some cases, together with the rapid onset of the symptoms, serve as distinguishing marks.

Treatment.—The only measures of service appear to be the administration of general tonics, the use of baths, and massage. No treatment can be directed toward the disease itself. If syphilis has preceded the beginning of the trouble, which is rarely the case, antisyphilitic measures should be thoroughly tried.

12 West Tenth Street.

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[*] Joffroy and Achard. *Archiv. de méd. expériment. et d'anatomie patholog.*, 1891, No. 1.

[†] Case of Bernhardt, *Deutsch. med. Wochenschrift*, No. 8, 1891. Case reported by Church, *Jour. of the Am. Med. Assoc.*, 1881, No. 10, p. 330. Case reported by Kretz, *Wiener klin. Wochen.*, No. 25, 1890. Joffroy and Achard, *Archiv. de méd. expériment.*, 2, p. 540, 1890. Case reported by Jolly, *Neurologisches Centralblatt*, 1891, p. 382.

[‡] Brunzlow. *Ueber einige seltene wahrscheinlich in der Katagorie der Gliosis Spinalis gehörende Krankheit.*

[#] Upson. *N. Y. Med. Journal*, 1888.

[‖] Van Gieson. *Journal of Nervous and Mental Disease*, July, 1889.

[△] Schlesinger. *Wiener med. Wochen.*, 1891, Nos. 10–14.

THE TREATMENT OF THE GRAVER FORMS OF PELVIC SUPPURATION BY THE INTRAPERITONEAL IODOFORM TAMPON.[*]

By CHARLES K. BRIDDON, M. D.

The following cases of laparotomy, done for advanced suppuration of the tubes, occurred during a six months' service in the Presbyterian Hospital. Most, if not all, of the patients were sent in from the outdoor department and occupied beds at the same time. They were selected to illustrate the principles of the open method in the treatment of collections of pus in the cavity of the pelvis, and I was so impressed with the successful issue of some of the worst cases that I did not hesitate to use them for such purpose.

The first case is also interesting, as showing the distressing consequences which may follow an accident that has occurred to many operators besides myself, and the treatment of which has baffled their best-directed efforts.

Case I. *Pyosalpinx; Old, Firm Adhesions; Complete Transverse Rupture of the Rectum; Formation of a Temporary Artificial Anus; Second Operation for Reconstruction of the Rectum; Recovery, with Complete Restoration of Function.*—Mrs. E. F., aged twenty-nine. Four years ago she gave birth to her first child, and puerperal septicæmia complicated her convalescence. Since then she has had three miscarriages, and has suffered from repeated attacks of pelvic inflammation, her present attack being the most severe she has had.

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[*] Read before the New York Surgical Society, October 28, 1891.

On her admission, vaginal examination revealed a firm, tense, unyielding mass, occupying the left lateral half of the pelvis. She was suffering from a good deal of pain and had a temperature running up from 101° to 103° F. Operation was advised and accepted.

Operation, January 29, 1891.—With all the usual antiseptic precautions, and with the patient under the influence of ether, an incision four inches long was made in the median line. The uterus was found firmly fixed by a mass situated apparently in the left broad ligament and encroaching on its posterior surface to a point beyond the middle line. It was not possible to distinguish ovaries, tubes, or any other anatomical landmark; the posterior *cul-de-sac* was completely effaced and lifted up level with the brim of the pelvis. At no point could there be found a place where the finger could be insinuated to begin the process of enucleation. Only after some time by pressing the finger forcibly downward, close to where the ligament is reflected on to the bony wall, and by careful scratching through the adhesions—possibly through the peritoneal investment itself—could the ungual phalanx be introduced sufficiently to recognize the wall of a largely distended tube. Enlargement of this opening facilitated the further unfolding of the mass, but it was extremely difficult on account of adhesions deep down in the immediate vicinity of the pelvic floor, the fore and middle fingers only acting efficiently when crowded down to their fullest extent. At this point in the operation, when feeling the mass from below upward, the tube was ruptured, evacuating six or eight ounces of fœtid pus, which was promptly caught upon sponges until the cavity from which it escaped was judged to be clear. Then, upon drawing the mass to the surface, it was found attached to the lower end of the rectum, which had been torn completely across. There was some venous hæmorrhage from what represented the distal extremity of the tube, which was arrested temporarily by clamps and subsequently by ligatures. A ligature on the proximal end of the tube cut through the friable tissue, leaving a bleeding stump projecting half an inch from the cornua of the uterus; this was transfixed and tied close to the fundus. The rectum was torn across at the junction of the lower and middle thirds, and even when brought outside the abdominal walls it was found utterly impossible to separate the adherent tube, so intimately was it incorporated with its walls, and, as the operation had now lasted some time and symptoms of exhaustion indicated its rapid completion, it was determined to defer an enterorrhaphy, which would have been difficult and tedious, and to substitute for the time being an artificial anus. As much of the tube as could be dissected off the proximal end of the severed gut was removed, leaving a portion adherent about as large as a silver dollar. The latter was fixed in the abdominal wound by half a dozen silk sutures, very free irrigation of the immediate area of operation was made with hot water, and then, after an elaborate toilet, the lower portion of the wound was filled with a large glass drain surrounded with a liberal packing of iodoform gauze, protected externally with a heavy antiseptic dressing.

Symptoms of shock persisted during the evening and night following the operation, but free stimulation and dry heat were used with effect. The glass tube was removed on the third day. Convalescence was slightly interrupted by infection of the wound from the artificial anus, but it acted kindly, and the operation cavity contracted rapidly to a narrow sinus.

During the first week of March a second operation for restoring the normal function of the rectum was contemplated. It was considered that it would be almost impracticable from above, and that it would be necessary to do some osteoplastic operation through the sacrum, either Kraske's or Levy's, or that it might be reached through Zuckerkandl's operation of perineotomy. At all events, the procedure was to begin above, and conditions met with during that exploration were to determine the later steps.

Operation, March 14th.—Ether narcosis. An examination of the lower rectum through the anus showed that that portion of the gut ended in a blind pouch about three inches above the sphincter. The sinus above the pubes representing the contracted wound of the first operation was then dilated and explored with the index finger, and all adhesions were broken up for the purpose of facilitating later steps in the operation. This was most thoroughly done from one side of the pelvis to the other, and in so doing it was easy to distinguish the remaining right ovary, and to isolate it from surrounding structures. This cavity was then thoroughly irrigated and filled temporarily with bichloride gauze.

The patient was then placed in the Trendelenburg posture, the anus præternaturalis was circumscribed by an incision down to the peritonæum, and closed with a ligature to prevent infection of the abdominal cavity. From the upper limit of this incision a second was made up to the umbilicus, the recti were separated on either side from their origin to the upper limit of the wound, and the peritonæum was opened immediately below the umbilicus; it could not have been safely opened below this point on account of the presence of adherent intestine. On the right side these adhesions close to the line of incision were so dense that it would have been impossible to liberate them. Fortunately, on the left side, where the work had to be done, it was possible to separate them without running any risk, and the proximal end of the rectum was loosened as far as the termination of the sigmoid flexure. The cavity of the pelvis was then explored, and the right ovary and tube were removed. After some further search, the distal end of the rectum was found, and it was considered practicable to unite the severed ends of the gut in the wound; half a dozen silk loops were passed through the circumference of the torn end of the lower segment, and it was invaginated by knotting the ends of these long loops, passing them through the anus, and then making traction until about three quarters of an inch was turned in; then about an equal number of long silk loops were passed through a fresh section of the circumference of the upper segment; these were also passed through the anus, and traction was made until three quarters of an inch of this portion of the gut was drawn into the invaginated portion of the lower end, where it was secured by a circular enterorrhaphy. The cavity was then filled with iodoform gauze, and the upper portion of the abdominal wound was approximated by half a dozen silk-worm gut sutures. The time of the operation was two hours.

It was expected that some fæcal communication with the wound would remain, and that it would gradually contract into a fistula that it was hoped would eventually close. To prevent disturbance of the parts, small doses of opium were given, but they were ineffectual in preventing movements of the bowels, the first occurring within forty-eight hours, through the natural outlet, without the slightest contamination of the wound, and they occurred every day or two afterward; and at no time was the house surgeon, Dr. Hupp, able to find any evidence of leakage. Nothing marred the patient's convalescence. On April 23d a digital exploration of the rectum was made, and it was not possible to distinguish anything differing from the normal condition. She was discharged on April 25, 1891.

Six weeks after leaving the hospital an abscess formed, which degenerated into a fistula, that was probably caused by a ligature. Along this track there occasionally escaped flatus and a discharge that was stained with feculent material; it closed in a few weeks, and the woman now looks a perfect picture of health, although it is not improbable that she may have occasional trouble from the same source.

Case II.—Mrs. E. I., aged twenty-three. There is an obscure history of gonorrhœal infection, but she has never been pregnant. Last April she began to have abdominal pain, chiefly confined to the left side, since which time she has had repeated attacks of pelvic peritonitis.

On admission, she had a temperature of 101·5°, and examination revealed signs of pyosalpinx of the left side. Laparotomy was done on November 8th.

A median incision of four inches opened the abdominal cavity.

A large cyst was found with several daughter cysts, having transparent walls and containing an amber fluid. The cyst, apparently, was attached to the broad ligament on the left side.

It was bound to its environment by adhesions, and was ruptured on manipulation. The empty sac was ligated at its pedicle and removed. The left tube was found much distended with pus, and was removed with difficulty, also being ruptured during the process of breaking up its adhesions. But little pus was allowed to escape into the peritoneal cavity, careful sponging absorbing the discharge. The opposite tube was explored, and found nearly as much distended as the left, though its adhesions were not so numerous or firm. It was removed easily without rupture. The toilet of the peritonæum was made with thorough irrigation of bichloride solution (1 to 5,000). Strips of iodoform gauze were carried down into the *cul-de-sac* of Douglas and into the lateral *culs-de-sacs*, thus shutting off the peritoneal cavity.

The wound was left open, except at its upper extremity, where three silk-worm gut sutures were used. A heavy dressing was applied.

For two days the condition of the patient was critical. She did not rally well from the shock, and a vigorous course of stimulation was necessary. By the fourth day she was much improved, and no symptoms from peritoneal infection at the operation occurred. The abdominal wound was treated with frequent irrigation and healed kindly, except that a narrow sinus persisted to the day of her discharge, leading down for about four inches. She was discharged on January 10th, apparently in good health.

Case III.—H. S., aged thirty-two, United States, housewife, married fourteen years ago, mother of two children, both dead, had an attack of peritonitis in May, 1890, that confined her to bed for two months; and indeed she has never recovered from it.

On admission, October 29, 1890, she is poorly nourished, emaciated, blanched, and anæmic. Abdominal wall very thin, convex, and prominent; parturition striæ present; some moderate tympanites.

There is dullness with increased resistance in the right inguinal region. On deep palpation, a distinct tumor is readily made out, the long axis of which is parallel with Poupart's ligament.

Vaginal Examination.—The cervix is low down and within three quarters of an inch of the vaginal outlet. Uterus firmly fixed and retroverted; cervix effaced. Right vaginal fornix dense and bulging.

Fingers of both hands ankylosed in position of flexion; typical lesions of rheumatoid arthritis.

Urine pale, turbid, 1·010; acid, ten per cent. albumin; leucocytes, stellar phosphate; and casts doubtful.

Temperature ranging from 101° to 103°; pulse from 108 to 120.

Operation, November 1, 1890.—Ether narcosis. A median incision three inches in length was made midway between the symphysis and the umbilicus, and on opening the cavity of the peritonæum there escaped a few ounces of clear yellowish serum. On separating the abdominal wall there was readily exposed to view a tumor situate to the left of the median line; it was fluctuant. The left Falloppian tube could be traced to, and was then lost in and apparently expanded over, the tumor; the rest of it was covered with a coil of large intestine, which was believed to be absolutely inseparable. The distended tube was bound down on all sides by adhesions of a very dense character; a point was selected between the adherent colon and the tube where it was believed an opening might be made, and an aspirating needle gave exit to a pint of foul, fœtid pus. On withdrawing the needle, the opening which it had occupied was clamped, and an area of two inches of the lax wall of the tube was stitched to the edges of the parietal peritonæum; and after the abdominal wounds below and above were accurately closed the cyst was freely incised without danger of infecting the general cavity of the peritonæum. The after-history was uneventful; the cyst emptied itself readily through the drainage-tube, pain ceased, the temperature fell, and the general condition improved from day to day, but the patient unwisely determined to go home on the 30th, before the sinus had entirely healed.

Case IV.—Mrs. S. A., aged twenty-one. A clear history of gonorrhœal infection two years ago is obtained. She has never been pregnant, and menstruation was normal until her gonorrhœa occurred, when it became irregular and profuse, and pelvic pain was experienced at varying intervals. Upon admission to the surgical wards an examination disclosed large globular masses filling both vaginal fornices laterally. Laparotomy was performed on December 31st, a median incision being used. The right tube was found much distended with pus and firmly bound by numerous adhesions. Its lower portion was dilated into a large abscess cavity in front of the sacrum. An attempt was made to raise the tube and free it from its adhesions, but, unfortunately, the thin walls of the dilated portion gave way, evacuating several ounces of pus, which was promptly caught upon sponges so as to admit of little or no escape of purulent material into the peritoneal cavity. The ovary was found also degenerated and nodular, and was removed with the upper portion of the tube.

The left side being explored, the ovary and tube were found similarly diseased. The tube was dilated and distended nearly as much as the right one, but the adhesions were not so firm or numerous. Both the tube and ovary were removed after some difficulty. A large glass drainage-tube was passed down into the *cul-de-sac* of Douglas, and iodoform gauze packed around it. The toilet of the peritonæum and operation wound had previously been made with the copious use of sterilized hot water. The wound was left entirely open. A heavy dressing was applied.

The patient rallied well from shock, and no unfavorable symptom presented itself during her convalescence. The glass drainage-tube was left in place until the discharge of pus decreased. Daily irrigation with creolin solution was employed for some time. She was discharged on March 10th, with a small sinus persisting.

Case V.—Mrs. M. M., aged twenty-nine. She has had six children in normal labor, the last labor being a year ago. Her menstrual history is negative. She gives no morbid history prior to shortly before admission, when she had a sudden attack of pain in her back radiating across her abdomen. For about a week she has had pain in her left groin, becoming progressively more severe. On admission, she had a temperature of 100°, and a pulse of 108 and of poor quality. Dr. Briddon's examination showed a mass situated behind the cervix and to the left of the uterus, extending high up as far as the examining finger could reach. The same mass was felt *per rectum* and pressed upon the anterior rectal wall. It was firm and tense, but seemed fluctuant at one point. Laparotomy was done on January 24th, the median incision being used. The left tube was found firmly adherent to the left side of the pelvis and to the rectal wall. The tube was much distended and was so distorted as to be difficult of recognition. The adhesions to the rectum and to the rest of its environments were so numerous and firm that, despite great care, a large irregular rent was made in the tube. Little pus seemed to exist in the tube, but considerable coagulated blood was found. The peritonæum was carefully protected by sponges from infection, and the tube was cautiously brought into the wound, where it was ligated close to the cornu of the uterus and removed. All hæmorrhage from adhesions being stopped, the abdomen was irrigated with sterilized hot water. The wound was packed with iodoform gauze and a glass tube carried down into the left lateral *cul-de-sac*. The usual dressing was then applied. A very good recovery from operative shock occurred. The wound healed well, granulating from the bottom, and she had a perfect convalescence. She was discharged on March 3d, the wound being healed with the exception of a small sinus.

Case VI.—K. S., aged twenty-six, married, had one child two years ago, since the birth of which she has suffered much from pelvic pain and painful and profuse menstruation, and has a constant whitish vaginal discharge.

On admission, January 25th, she looks badly; has a careworn expression on her face, which looks anxious and is occasionally flushed. Heart and lungs sound; temperature ranges between 99° and 101°; pulse from 114 to 120; urine normal; palpation reveals a tender mass in the left iliac fossa. *Per vaginam*, an indurated swelling is found behind the cervix and filling the left lateral fornix; everything is fixed and exquisitely tender.

Operation, January 31st.—Incision in median line four inches long; uterus found firmly fixed by adhesions. The left tube scarcely traceable, the distal end dipping under the sigmoid flexure, to which it was adherent; it was separated with much difficulty, and the ovary to which it was attached was converted into a bag of pus, which ruptured under the manipulations; the pus, however, was promptly caught upon sponges, and the cavity from which it escaped was thoroughly cleansed; ligatures were then passed on either side, and the whole was removed. The appendages on the right side were also found diseased, but the adhesions were much less extensive, and no difficulty was experienced in their removal.

During the night following the operation she had pain that required a moderate use of morphine, and restlessness and pallor suggested the possibility of hæmorrhage, but removal of the superficial dressings only discovered slight staining with blood. Stimulants were liberally used, and saline injections, but she did not respond, and died of exhaustion, February 3d, seventy-two hours after the operation.

Case VII.—Mrs. N. S., aged twenty-nine. She has borne two children in normal labor, but convalescence after her last labor was protracted. She has had repeated attacks of pelvic inflammation dating from her confinement. The present attack is the severest of all, and has lasted three weeks. On admission, the left lateral fornix of the vagina is found filled with a tense, firm mass.

By palpation of the abdomen this same mass can be felt in the left iliac fossa extending irregularly from the uterus toward the site of the ovary.

Laparotomy was done on February 2d. The uterus was found slightly anteverted and bound by firm adhesions. The left tube and ovary were adherent to their environment and the tube was moderately distended with pus. The ovary was much altered by cystic degeneration, small cystic masses projecting from its surface. The ovary and tube were freed with great care, and raised without rupture. The severed pedicle was seared with the Paquelin cautery upon removal of the ovary and tube. The right ovary and tube were found in a similar condition, but there were few adhesions, and the tube was but slightly distended with pus, the ovary being also less degenerated. The severed pedicle was treated with the Paquelin cautery, and the ovary and tube were easily removed. Hot-water irrigation completed the peritoneal toilet. The wound was left open, a glass drainage-tube being inserted at the lower angle, with iodoform gauze surrounding it.

Not an unfavorable symptom occurred during convalescence, and she was discharged on March 15th with the wound entirely healed.

Case VIII.—Mrs. M. D., aged seventeen. She gave birth to a child twenty-three months ago in normal labor, and no puerperal sequelæ followed. Menstruation has been normal. Six weeks ago she had a sudden attack of pain in the left inguinal region, following gonorrhœal infection. The abdominal pain has persisted and become progressively severer. On admission, the left lateral fornix is found occupied by a bulging mass, soft and fluctuant. Laparotomy was performed on February 14th. The Trendelenburg posture was used, the patient being placed upon a reclining table with her head lowered. A median incision laid open the abdominal cavity. Owing to the posture of the patient, in cutting what was supposed to be thickened peritonæum a slight nick was made in the wall of the bladder, but it was promptly recognized, and the hemorrhage was controlled by two ligatures. The Trendelenburg posture facilitated the exploration of the pelvis. The right tube and ovary were found enlarged and adherent to the environment, being displaced to the left side of the pelvis. The adhesions were cautiously broken up, and the tube was raised and removed without rupture. The left tube and ovary were found but slightly adherent, and did not seem extensively diseased. They were easily removed. The peritoneal cavity was flushed out copiously with sterilized hot water. A glass drainage-tube was placed in the lower portion of the wound, going down to Douglas's *cul-de-sac*, a small piece of gauze being carried through the tube for capillary drainage. Iodoform gauze was packed around the drainage-tube.

The upper portion of the wound was closed with silk-worm gut sutures. A heavy dressing was applied.

The patient rallied well from the operation, but two days afterward developed pneumonia of the lower left lobe. She was placed under Dr. W. H. Flint's care and recovered well, defervescence occurring on the sixth day.

The abdominal wound closed gradually, and she was discharged on March 24th with the wound entirely healed.

Remarks.—In an address delivered to the French Surgical Congress at Paris, on April 2, 1891, Lawson Tait used the following language: "The operation for the removal of the appendages altered by chronic inflammatory disease is always difficult; sometimes the difficulty is so great as to be perfectly unmatched in the whole range of surgery. Many very competent surgeons declare there are many cases where the operation can not be finished, but that is a conclusion I can not accept, as increased experience, and consequently greater boldness and perseverance, has enabled me of late years to complete every operation I have begun. I lay it down, therefore, that no operation of this kind should be left unfinished. This rule, if accepted generally, as it is in my practice now completely established, opens up at once a great road for difference of result, rate of progress, and remote effect of the operation. I never hesitate to overcome the most intimate adhesions of an old suppurating tube or ovary to bladder or intestine merely for the fear of a rent of these viscera. In many cases I have had urinary and fæcal fistula remaining for months after an operation, but I have always succeeded ultimately in closing them. Simple suppurating sinuses leading deep down into the pelvis occur probably in five per cent. of all the cases."

With a full appreciation of the matchless skill of the author quoted above, I must express the opinion that in a considerable number of the graver cases of pyosalpinx it is utterly impossible to remove the whole pus-secreting surface; that a failure to do so may protract, but does not otherwise militate against, a perfect cure. I am quite certain that in some of the reported cases portions of the distended and intimately adherent tubes were left behind, and I attribute the recovery of these patients to the fact that they were treated by the open method. It has long been recognized that the peritonæum is tolerant of the presence of considerable amounts of infectious matter.

In the *Mütter Lectures on Selected Topics in Surgical Pathology*, Series 1890–'91, Roswell Park says: "Among all the defensive powers of the system, the capability of resorption is, perhaps, the most important protection enjoyed by the cells and tissues composing the organism. This power seems to be enjoyed in the highest degree by the peritonæum, which is known sometimes to tolerate and dispose of relatively large amounts of infectious material." I would not have it understood that I regard this natural protection against the invasion of cocci as a warrant for the omission of any of those precautions that experience has proved to be useful. I believe that in cases where the infectious material has been confined to the area of operation it is advisable not to irrigate, but to cleanse as thoroughly as possible and apply the intraperitoneal iodoform tampon; but to render it effectual and to aid in its removal some precautions have to be used. Miculicz and Fritsch have taught that iodoform gauze may be left in the abdominal cavity for seven days. Treub considers that such a prolonged tamponade involves the risk of iodoform poisoning, sepsis, and the formation of adhesions that make its removal difficult. In his experiments, as soon as the tampon is placed the intestines become attached to it, but not sufficiently to prevent drainage of the whole cavity, which may continue for five days. If removed during this period, no cavity is found shut off from the rest of the peritonæum, but small adhesions remain, which are caused by the irritation of the tampon. If allowed to remain a week or longer, the gauze becomes encapsulated, so that when used to arrest hæmorrhage it is better to remove it within four or five days; but in cases of suppurating cysts it may be left in for ten or twelve days. To facilitate the removal of the tampon it has been my custom to pass one or several large glass drains down to the bottom of the cavity, and to pack around these a liberal amount of gauze exposed in the lower part of the abdominal wound, three or four inches of which are left open. When the time comes for removal of the gauze, the tubes are first taken out, and then the tampon, which is comparatively easy; but I have rarely made the first dressing before the fifth day.

I was extremely gratified at the result following the operation for reconstruction of the rectum (Case I). It had caused me much anxiety, and the selection of an appropriate method of attack was not an easy one. An approach from the front was necessary to liberate the "anus præternaturalis"; but I did not think it would be possible to unite the severed ends of the gut deep down in the cavity of the pelvis, and I was surprised at the ease with which it was accomplished. I fully expected it would be necessary to do some modification of Kraske's operation for high extirpation of the rectum.

The method of telescoping the upper segment of the bowel through the lower I believed to be original with myself, but I have since found that Hochenegg proposed the same measure. The idea of invaginating the end of the lower segment before telescoping, so as to give a broader contact surface, was conceived by Dr. Lange, of this city.

QUANTITATIVE TESTS FOR UREA.*

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The great number of apparatus designed in the past twenty years for the approximate estimation of urea in the urine may be taken as a sign of the recognized importance of the subject, and of the desire to place in the hands of the physician the means of readily and fairly accurately determining the daily amount excreted. With a view of ascertaining the relative accuracy and simplicity of the apparatus now mostly in use, I have made a series of experiments during the past year, the results of which I beg to submit to you.

In all the various forms of nephritis, whether acute or chronic, we look to the urine for the most important aid in diagnosis. In former years, and I believe to a great extent at the present day, the urine was simply tested for albumin, and, this found, search was made for casts. Having ascertained their presence, and taking into account the general clinical history, the physician would diagnosticate the case as one of Bright's disease, and thereafter cease his work with the urine. The value of ascertaining the presence of albumin and casts is not to be questioned, as it is in fact essential in arriving at a correct diagnosis; but, this once done, the most important substance excreted in the urine which claims our earnest attention is urea. In grave cases, either acute or chronic, its daily quantity should be ascertained; by the knowledge thus gained we may often succeed in averting a threatened uræmic attack. The quantity of the urine passed may not show any decided diminution, and yet a uræmic attack is suddenly precipitated, the reason for which is readily found if we test for urea.

Urea is a nitrogenous compound of the chemical formula CON_2H_4. It is an excrementitious substance and is the product of tissue waste. It is constantly present in the blood, according to Dalton, to the amount of twenty grains in a healthy man weighing about one hundred and forty-three pounds. Any amount above this circulating in the blood becomes toxic, the tolerance of which varies much in different individuals. The daily amount excreted by a man of the above-named weight is given by Dalton as four hundred and eighty grains. This amount may be greatly increased by exercise and a highly nitrogenous diet, and much diminished by rest and a restricted diet. It is also important to bear in mind that different persons vary considerably in the amount of their daily excretion of urea. In a state of disease not attended with fever, during which the urea is always increased, with less food and exercise, the quantity is naturally much diminished; but if the kidneys become involved and an obstruction to the necessary elimination takes place, the danger of a rapid accumulation in the blood is readily apparent. In chronic Bright's disease, on account of the impoverishment of the general nutrition, less urea is formed in the system, and, under proper diet and medication, the kidneys can well eliminate the requisite amount.

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* Read before the Kings County Medical Association, October 13, 1891.

Dr. Austin Flint, Jr., in his *Manual of the Chemical Examination of the Urine*, page 22, says: "Inasmuch as the production of urea is profoundly affected by the quality of the food, and as one of the great dangers to be feared in serious structural disease of the kidneys is uræmia, it would seem as important to diminish the production of urea by a change in diet as to adopt measures to favor its elimination from the system. It is certainly a reasonable supposition that the danger from uræmia would be diminished if the production of urea be reduced by regulating the ingesta, particularly with reference to nitrogenized matters." But we do not know the amount of tissue waste going on in any state of disease, nor the amount of urea to be discharged in order to maintain a safe quantity in the blood, and, as the quantity of the urine voided in each twenty-four hours does not give any indication of the quantity of urea excreted, it is evidently absolutely necessary to ascertain the latter by some means if possible. As above stated, each person has, no doubt, his own standard of daily excretion of urea in health, and hence we must expect considerable variation in disease. It is a well-established clinical fact that some persons suffering from nephritis are apparently perfectly well when excreting a quantity of urea which in others would be promptly followed by uræmia. I have had for several years a patient under observation who rarely passed more than thirty-five grains in twenty-four hours, her greatest amount being fifty-two grains on one occasion, and yet she was in very fair health. She was an old lady, eighty-four years old, who took but little food and exercise, and who lived a very quiet and regular life. Other patients will pass from one hundred to two hundred grains in twenty-four hours, and give us symptoms of an approaching uræmic attack. This difference is no doubt in part due to the amount of urea formed in the system; but whether it otherwise depends on a varying degree of tolerance of the amount circulating in the blood or upon the presence of ptomaines and similar toxic products is an open question.

The many cases of chronic nephritis which come under our observation and which require constant watching for many years can only be intelligently treated by ascertaining their daily excretion of urea, and watching this under the different influences of food, exercise, and climate. Making two to three tests a week for a few months and studying during this time their habits, etc., will give us a clinical picture not otherwise to be obtained, and enable us to make our patients much more comfortable than we could do without this knowledge.

The different processes employed for the estimation of urea are the mercuric nitrate, the hypobromite, and the hypochlorite. The first is the one proposed by Liebig, and is based upon the fact that urea produces a precipitate with mercuric nitrate. For the busy practitioner this process is much too complicated and troublesome, and it is of value only to the chemist. In point of accuracy it leaves nothing to be desired, if practiced by expert hands. The hypobromite and hypochlorite processes are based on the fact that solutions of hypobromite of sodium and of hypochlorite of sodium decompose the urea and set free its nitrogen, the volume of which represents the quantity of urea present in the urine, 1 c. c. of the gas being equal to 0·0027 gramme of urea. Of these two processes, the hypobromite is the older, and certainly the more accurate one. It was first suggested by Knop, and later improved by Russel and West, and is used in the apparatus designed by Marshall, Hüfner, Gerrard, Green, Doremus, and others. The solution consists of 100 grammes of sodic hydrate in 250 c. c. of water, to which 25 c. c. of bromine are added. The hypochlorite process is employed by Squibb and Fowler. The latter bases his method upon the fact "that there is a difference in the specific gravity of the urine before and after the decomposition of its urea by the hypochlorites, and that such difference bears a definite relation to the quantity of urea" (Tyson, *Urine Analysis*, 1891, p. 158). This method requires at least two hours for its completion and involves too much calculation.

Of the available apparatus, I have selected three, as being the simplest for practical office work. I have used them in the comparative tests and shall describe them in detail. For contrast I have here the apparatus of Marshall and the one designed by Hüfner; I will not take up the time to describe them, but simply call your attention to their complexity. They are a fair type of the many designs which are practically useless in the physician's office.

The apparatus devised by Dr. E. R. Squibb, of this city, and described in detail in his *Ephemeris*, vol. ii, p. 430, is based on the hypochlorite process, and he employs for the purpose the U. S. P. solution of chlorinated soda. But instead of measuring the gas evolved by the decomposition of the urea, he measures the water displaced by it. For a brief description of it I will quote from his article in the *Ephemeris*:

> In using the apparatus, put into phial A 40 c. c., or 1⅓ fluidounce, of officinal U. S. P. solution of chlorinated soda. Measure accurately into the urine jar 4 c. c., or 64 minims, of the urine, and by means of the forceps, or some other device, as a loop of thread, place the charged urine jar in the solution in

phial A in the position shown in the cut, and put the stopper securely in place, having the long rubber tube slipped on to the short glass tube. Fill phial B nearly full of water of the temperature of the room, put the short rubber tube on the bent glass tube of the stopper of B, and then put the stopper firmly in place. Then holding phial B thus stopped in the right hand with the forefinger over the end of the straight glass tube, incline the phial toward the bent glass tube until that and the short rubber tube on it fill with water. When filled, stop the flow by closing the end of the straight tube with the finger, and with the left hand put the little stopper into the end of the short rubber tube while this tube is full of water. Then lay phial B on its side on the support, as shown, and slip the free end of the long rubber tube on to the straight glass tube of the stopper of B, thus connecting A and B. Put a piece of waste paper under the end of the short rubber tube and then take out the little stopper. A few drops of water will usually escape, but if the apparatus be tight, and if the temperature of the apparatus and the room be the same, no more water will run out, nor will air enter. A common two-ounce phial, or any other similar vessel, is to be used for receiving the displaced water. Rinse it out and drain it for a moment so as to leave the inner surfaces wet as they will be left when it is emptied for measurement of the water, and then put it in its place under the short rubber tube, as shown, and the apparatus is then ready for the process. Incline the phial A until the urine and the solution mix, and agitate the mixture gently sidewise until the effervescence ceases, being sure that a full interchange of liquids between the jar and phial is effected. When the effervescence is at an end, and no further movement of gas into B occurs upon pretty vigorous agitation, let the apparatus stand a quarter or a half hour to regain the room temperature. The time required to equalize the temperature may be shortened to about ten minutes by immersing phial A in a bath of water at the room temperature. During this cooling a little water will pass back from D into B and from B into A, and when this movement is at an end, the water in D is to be carefully measured.

From this the amount of urea is easily calculated, as each c. c. of water displaced is equal to one c. c. of nitrogen evolved, and each c. c. of nitrogen represents 0·0027 gramme of urea. Accompanying the apparatus is a table giving a calculation of the results for each c. c. of water displaced from 15 c. c. up to 60 c. c., thus saving much calculation and time. What may have seemed, from the description, quite complex an apparatus, is in reality quite simple, and after the experimenter has become a little expert in the use of it, he can make a test in from ten to fifteen minutes. But in regard to accuracy I have found it wanting. In numerous tests made with it during the past year, compared with the results obtained from the same specimens of urine by one or two of the other apparatus, I had from 0·75 to 1 per cent. less urea. I have recently made a large number of tests with an accurate solution of 2 per cent. of urea. In twelve of these the chlorinated-soda solution was assayed for its available chlorine before being used, and the results were as follows:

	Available chlorine.			Urea.	
Solution containing	2·6	per cent.	gives	1·29	per cent.
" "	2·6	"	"	1·25	"
" "	3·4	"	"	2·23	"
" "	3·4	"	"	2·23	"
" "	2·7	"	"	1·28	"
Solution containing	2·6	per cent.	gives	1·28	per cent.
" "	2·2	"	"	1·22	"
" "	5·17	"	"	1·35	"
" "	5·17	"	"	1·35	"
" "	2·9	"	"	1·62	"
" "	2·6	"	"	1·38	"
" "	3·4	"	"	1·38	"

It will be seen from the above-given table that not in one of the tests did we obtain the 2 per cent. of urea employed. Every one of them was done with the utmost care, and strictly in accordance with the instructions of Dr. Squibb. Most of them were made in his laboratory in my presence by one of his chemists, Mr. Edward M. Butler, and in some of them the results were verified by me. The amount of available chlorine in the soda solution does not seem to be at fault, because each specimen employed contained more than the 2 per cent. prescribed by the U. S. Pharmacopœia. Nor do solutions of the same strength produce the same results, for in two tests with the same solution of the strength of 3·4 per cent. available chlorine, we obtained 2·23 per cent. of urea, or 0·23 per cent. more than was put in, while another solution of the same strength of 3·4 per cent. only gave us 1·38 per cent. of urea. The greatest strength employed was 5·17 per cent. of available chlorine, which only yielded 1·35 per cent. of urea, proving that a high percentage of chlorine is not necessary. I am unable to offer an explanation for these variations, and I regret exceedingly that Dr. Squibb is in Europe and can not, therefore, help us out. He has gone over the ground so thoroughly, and is so familiar with all the difficulties encountered in quantitative tests for urea, that he would no doubt be able to explain the above enumerated failures. In his original experiments with his apparatus he employed a solution of urea of known strength, and the results obtained were very accurate. I believe the failures are due to some impurities in the chlorinated-soda solution which interfere with the proper decomposition of the urea. I am compelled to admit the correctness of Dr. Doremus's remark to me, that all solutions of chlorinated soda are unreliable. Dr. Squibb says, in his article in the *Ephemeris*, above referred to, on page 453 : "It may be as well to note, in conclusion, that any kind of solution of chlorinated soda will not answer for this purpose any more than for medicinal uses, as the markets are all supplied with some which contains very little hypochlorite of sodium. But any solution that is made in moderately close accordance with the U. S. Pharmacopœia, either of 1870 or 1880, will answer well, no matter how old it is, if it has not been too long or too much exposed to the air. . . ." Dr. Austin Flint, Jr., in his work above cited, on page 46 says, in speaking of the accuracy of Davy's process: "I have arrived at this conclusion in the same way, using the imported French Labarraque solution, but have found the test very uncertain with the American article, in some instances obtaining not more than one half the proper quantity of gas." The apparatus of Dr. Squibb is simple and can be readily used by any one, but it is not accurate and reliable, on account of the uncertainty of the chlorinated-soda solution. I made several tests with his apparatus, substituting the hypobromite for the hypochlorite solution, and using the same 2-per-cent. solution of urea used in the hypochlorite tests, and I obtained in every instance 2 per cent., thus proving the presence of 2 per cent. of urea in the test solution employed.

The apparatus designed by Dr. E. H. Bartley, of this city, and described in the *Journal of the American Chemical Society*, vol. xii, p. 283, is based on the decomposition of the urea and the liberation of its nitrogen by the hypobromite solution. For the latter he does not employ the standard solution used by the other experimenters, but instead uses a 20-per-cent. solution of bromide of potassium in Labarraque's solution, and he maintains that this answers the purpose as well. His apparatus consists of "a graduated tube about 1 ctm. in diameter and 30 ctm. long, closed at one end, and graduated from this closed end throughout its entire length, each of the principal divisions representing grains per fluidounce, when 1 c. c. of the urine is taken." His directions for the conduct of the process are as follows: "Holding the ureometer in the left hand, pour in enough of the 20-per-cent. solution of potassium bromide to fill it to the fifth division; then add hypochlorite solution to the eighteenth or twentieth mark. The tube is now inclined and water added to the twenty-fifth division. With the small pipette 1 c. c. of urine is now added, allowing it to run down the side of the tube, so that it shall mix with the water floating upon the heavier solution below. The open end of the ureometer is now firmly closed with the thumb and its contents thoroughly mixed by inverting it a few times. When the effervescence ceases, which usually takes about two or three minutes, invert and read off the height of the liquid in the tube. The thumb is now removed under water, the tube depressed to bring the liquid in the tube to a level with the water in the outer vessel, and a second reading taken. The difference between the two readings gives at once the number of grains of urea in each fluidounce, or grammes per litre, according to the construction of the scale."

The apparatus is simple and a test can be made with it in a short time, but I found several objections to it. The results obtained are not accurate enough, the readings being too high. In a number of tests, made with great care, using a 1-per-cent. and a 2-per-cent. solution of urea, I obtained from the former 4¼, 5, 4¾, 5, 5, and 5 grains to the ounce, and from the latter 10, 10, 10, and 9½ grains. The five grains obtained from the 1-per-cent. solution would represent 1·096 per cent., and the ten grains from the 2-per-cent. solution 2·19 per cent. I furthermore found that the evolution of gas had not ceased at the end of three minutes, but I made the tests according to directions, allowing three minutes to elapse before immersing the tube, and I then obtained only 3¾ grains of the 1-per-cent. solution, and 7½ grains of the 2-per-cent. solution. A further objection to note is the direction to close the tube with the thumb. I believe it is impossible to withstand the pressure of the gas long enough when the urine contains more than 2 per cent. of urea. I overcame this by closing the tube with a tight-fitting rubber stopper, and I then allowed the tube to stand for fifteen minutes before immersing it, because even after that lapse of time the evolution of gas had not ceased.

The apparatus of Dr. Charles A. Doremus, of New York, consists of a glass tube closed at the top and bent sharply below, where it expands into a bulb having an opening at its upper part. The straight part is graduated in milligrammes per litre or in grains per ounce. The solution employed is the standard hypobromite solution above referred to, and the urine is introduced with a small pipette graduated to 1 c. c., having a slight bend at the open point, and being fitted with a rubber nipple at the other end. To use the apparatus proceed as follows: Fill the long arm of the tube to the = mark with the sodium-hydrate solution, then add, by means of the pipette, 1 c. c. of bromine, mixing the two slowly with the pipette, and dilute this mixture with its own volume of water, or enough to fill the long arm and the bend. One c. c. of urine is then carefully introduced by means of the pipette, compressing the nipple slowly and carefully. The urine rises through the hypobromite solution on account of its lower specific gravity, and its urea is decomposed on the way, setting free its nitrogen, which collects in the long arm, depressing the fluid into the bulb. The decomposition of urea is very prompt, the evolution of gas is complete in a moment, and the amount of urea may be read off at once.

From the description of these three apparatus it will be readily seen that the one of Dr. Doremus is by far the simplest. In my hands it has proved as perfect as could be desired. It is absolutely accurate and prompt in action, the time consumed, when making the solution fresh each time, being less than five minutes. The test solutions of 1 and 2 per cent. of urea yielded their respective amounts each time without a single failure. The only objection to the apparatus may be the handling of the bromine, but this can be overcome by making a quantity of the solution at a time or ordering it made by a careful chemist. After a little practice the bromine can be handled without any trouble.

The solution does not keep long if made up in bulk—certainly not longer than a month—and I think it is best to make it fresh for each test if we wish to be exact. My experience has also been that the caustic-soda solution does not keep forever, and it is best not to have too large a quantity made. When the bromine is added to the sodic hydrate, a great deal of heat is evolved, the mixture registering 95° to 105° F. By adding ice-water for its dilution we obtain a temperature of from 70° to 75° F., and this should be cooled down to 65° F. by holding the apparatus for a few moments under the cold-water faucet or immersing it in cold water. The more rapidly the bromine is mixed with the soda solution, the greater is the heat evolved, and, if too much heat is present, we shall get more of a bromate and a bromide than the hypobromite, which materially interferes with the test.

About a year ago my attention was called to the use of a different solution at the Hoagland Laboratory, consisting of a solution of bromide of potassium in chlorinated-soda solution, of the strength of one ounce of the former to three of the latter. I have made numerous tests with this solution, but I find it does not answer. In every test made with the 2-per-cent. solution of urea I only obtained 1·65 per cent., and this has been verified by Dr. J. M. Van Cott, Jr., at the Hoagland Laboratory. Nothing but the solution employed by Dr. Doremus should be used if we wish to get accurate results. The pipettes which accompany the apparatus are not made with sufficient care; some are good and others poor. The good pipette should be graduated about in the middle of the tube, and the nipple should be of such size that it is impossible to draw any fluid into it, which is very disagreeable when measuring the bromine. The point of the pipette should also have a sufficient bend to allow it to be well introduced into the long arm of the instrument. If ordinary care is used, and the nipple is slowly and carefully compressed, so as not to inject air into the tube, the result will always be perfect.

REPORT OF A CASE OF RUPTURED INTESTINE DUE TO TRAUMATISM.

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The comparative infrequency of this injury leads me to make the following report:

The patient, a male, forty-three years of age, was an epileptic, five feet three inches in height, weighing probably one hundred and seventy-five pounds. On the evening of September 25th he ate a hearty supper, and at 11 P. M. had a severe convulsion, during which he fell from his bed, striking his abdomen against the post of an adjoining bed. Two hours afterward he complained of some pain in the abdomen, but at 5.30 A. M. he arose, dressed himself, and sat up for more than an hour. When I first saw him, some eight hours and a half after the injury, he was again lying in bed in a semi-conscious condition, covered with a cold, clammy sweat, pulseless, breathing labored, rapid, and chiefly thoracic, pupils widely dilated, lips cyanotic, with a peculiar pinched expression of the face. He complained only of pain in the back of the head and neck. An examination of the body revealed a large ecchymotic streak in the right inguinal region, about six inches in length by an inch and a half in width, immediately above and parallel to Poupart's ligament. At the outer end of the bruise were several small superficial lacerations of the skin, seemingly due to overstretching; pressure on the abdomen in the hypogastric region caused pain, and the patient preferred to lie on the right side with limbs flexed on the body to relax the abdominal walls. At this time there was no rise of temperature.

A small quantity of normal urine was drawn with a catheter, stimulants were administered by the stomach, morphine was given hypodermically, and time given to recover from the shock; but the symptoms gradually grew worse, the temperature rose to 102° F., the abdomen became tympanitic with dullness at the sides, and the patient died sixteen hours after the injury.

A post-mortem examination revealed the following: Abdominal walls unusually thick and fatty; approximately two pints of bloody serum and fæcal matter in the peritoneal cavity; signs of a rapidly developing peritonitis; and a rupture in the ileum opposite its mesenteric attachment at a point four feet from the ileo-cæcal valve. The tear was an inch and an eighth in length, and the injured intestine was lying almost directly beneath the place of external injury. The bruise on the skin was purely superficial, as the muscular walls themselves showed no signs of injury.

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STAMMERING.

Of the functional disorders of the vocal mechanism, stammering is one of the commonest and most distressing. It forms the subject of an excellent paper by Dr. Wyllie in the October number of the *Edinburgh Medical Journal.* In the production of speech two mechanisms are concerned—that of the larynx, which is the producer of the vocal element, and that of the oral cavity, by which the sounds of the larynx are modified and new sounds are produced. These act together with the most perfect co-ordination. Let this co-ordination become imperfect and the speech is at once discordant and laborious. That the defect in the common variety of stammering is due to delayed action of the vocal mechanism in attacking the first syllables of words is an old proposition which is still maintained by the best authorities. When a primary demand for voice is made, as in song, intoned speech, or the reading of poetry with its musical cadences, sufficient energy is supplied to the laryngeal mechanism, and the difficulties of the stammerer disappear.

There are in speaking certain voiced elements and others that are voiceless. A knowledge of these will enable the stammerer, with easy decision, to throw the voice into the vowel or consonant that contains voice, and to touch lightly any consonant that does not contain voice, bringing out fully the vocal element succeeding it. This is the principle underlying the phonetic system or alphabetical table of Arnott, Pitman, Max Müller, and others. The author has constructed a physiological alphabet for which he alleges numerous advantages.

An analysis of the phenomena of stammering shows that the commonest fault is want of promptitude in the supply of voice during the pronunciation of the initial syllable. Sometimes in addition to this there is feebleness in quantity, usually due to the fact that the lungs are not properly filled with air, so that the attempt to speak is made with a half-empty chest. There is also in some cases what may be called drawback phonation, speech being attempted during inspiration. This is not uncommon. In addition to these faults in the vocal mechanism, there are also changes in the oral. There is a tendency to a surcharge of energy, so that the explosives and nasal resonants are increased and prolonged. In some cases spasmodic and involuntary movements are excited both within the organs of articulation and in the muscles of the face.

Among the causes of stammering, sex seems to play an important part, the disorder being five times as common in boys as in girls. The reason for this is not readily explained. Stammering is especially common among children of a neuropathic inheritance, but does not indicate defective intelligence. It is sometimes the result of direct hereditary transmission, but in some cases the apparent transmission is due to imitation of the parent's speech by the child. Sudden and violent emotion, and especially severe fright, has sometimes been followed by stammering in children previously free from the disorder.

In the treatment of these cases it is important, first of all, to impress upon the patient the fact that it is the larynx that is at fault. He must, therefore, pay no attention to the mouth, but attend to the voice, and speak in a full and resonant but natural tone. He should practice reading aloud, confining himself at first to poetry. If he has an ear for music, it is well for him to cultivate his voice in that direction and learn to read music at sight. A ready command of the voice will help him out of his difficulty. He should be taught the physiological alphabet, for which complete instruction is given in the paper referred to. He should be specially instructed to fill the chest at proper intervals. Attention to this important detail is rarely required when the patient has grasped the great principle of speaking with a full voice. The introduction of foreign bodies into the mouth, such as tongue-bridles and pebbles, is utterly useless, and surgical operations for the cure of the disorder are certain to result in dismal failures. In cases of exceptional difficulty a cure can be effected only by the daily attention of a specialist. In most cases in patients of ordinary intelligence, if they are made to understand the nature of their defect, they can themselves, by persevering practice, break their old vicious habits of speech and acquire new and correct habits.

PERITONEAL ADHESIONS AFTER LAPAROTOMY.

The frequency of adhesions of the intestines and other abdominal viscera after laparotomy has been observed by several surgeons, and in a number of cases they have had to perform a second laparotomy on the patient some time after the first one had been done. As these operators had taken the utmost precautions to prevent sepsis, and as their skill can not be questioned, it becomes a matter of great interest and importance to determine the factors which were at work in producing the adhesions. A number of able observers in Germany have made experiments on the lower animals with this object in view. The results of these experiments are thus far somewhat at variance, and have not always been in accordance with clinical experience. It may be of interest to give a brief *résumé* of the work done in this field. In Dembowski's experiments it was found that eschars produced by Paquelin's cautery favored peritoneal and visceral adhesions. Shortly after these experiments were published Küstner performed a laparotomy for abdominal hernia on a woman on whom he had operated fourteen months before for the removal of an immense ovarian tumor. The tumor was firmly adherent to the intestines, the bladder, and the left broad ligament. The adhesions were so firm that they had to be divided in many places with the cautery, and as a result extensive eschars were left behind. At the second operation Küstner found absolutely no adhesions of the intestines or of the pelvic organs, a result which was at variance with the experiments above related.

Kelterborn was now stimulated to make experiments in the same field, and as a result of these he made the following statements: 1. Adhesions in the abdominal cavity after laparotomy can be traced to infection, which may be considered as the chief pathological factor. 2. The omental adhesions in the median line are due to the entrance of air and to local inflammatory processes which need not be of an infectious nature.

The experiments of Hermann Thomson, published in a recent number of the *Centralblatt für Gynäkologie*, do not accord in the main with the foregoing results. The author draws the following conclusions, after giving in detail the steps of his experiments and the results in each individual case: 1. Intestinal and omental adhesions occur without infection, in aseptic wounds, in laparotomy. An accurate apposition of the lips of the wound with silk sutures is the best protective against extensive adhesions. 2. Superficial defects of the peritonæum heal without any evil consequences. 3. In order to prevent intestinal adhesions the omentum should be spread out under the abdominal wound before closing it. 4. A septic peritonitis following laparotomy is possible from infection by the air. 5. Aseptic foreign bodies, such as gauze, etc., when of a certain size, may cause adhesions. He found, for instance, that aseptic silk ligatures soon become encapsulated, while pieces of gauze when left in the abdomen for eight days became firmly adherent to the omentum.

Although these experiments, from the lack of harmony in their results, can not be considered as conclusive, they are nevertheless of great value, and there can be no doubt that further work in the same direction will result in something more positive.

MINOR PARAGRAPHS.

GONORRHŒAL STOMATITIS IN AN INFANT.

Professor Dohrn describes in the *Medicinisch-chirurgische Rundschau* the case of a child, eight days old, which was brought to his clinic suffering with swollen jaws. A further examination showed the back of the infant's tongue and the roof of its mouth to be eroded and covered with a grayish-yellow exudation. An acute stage of purulent conjunctivitis being present, the mother was questioned as to the possibility of gonorrhœal infection, and her answers confirmed the suspicion of this being the source of the trouble. To be positive, however, a small portion of the diseased mucous membrane of the mouth was excised and submitted for microscopical examination, and numbers of gonococci were found. It was supposed that infection took place upon the abraded mucous membrane in the child's mouth, the mechanical injury having possibly been inflicted by the accoucheur.

DEATH CAUSED FROM A VAGINAL INJECTION OF NITRATE OF SILVER.

M. Philips reports in the *Revue de thérapeutique* the case of a young woman who, finding herself pregnant, attempted to produce abortion by injecting into her vagina half a spoonful of nitrate-of-silver solution, the strength of which is not mentioned in the report. The procedure was followed in a short time by violent vomiting and severe pain in the abdomen. The pulse was accelerated, but regular; the temperature, 102·2° F. A vaginal injection brought away bloody flocculent masses of mucous membrane. The cervix uteri was much softened and the os gaping, with considerable enlargement of the uterus. Everything was done to relieve the suffering and prevent further absorption of the decomposed tissue in the vagina, but with no avail, and the patient gradually sank into coma and death. The autopsy showed the contents of the bladder to be mixed with blood, which further investigation proved to have come from the kidney. The folds of the vagina were found to be covered with a tenacious material consisting of broken-down mucous membrane. The uterus contained a ten-weeks-old embryo. The whole length of the large intestine and the inferior portion of the small intestine were softened and blackish. There was also evidence of a beginning peritonitis.

EXTRA-UTERINE GESTATION WITH PERFORATION OF THE VERMIFORM APPENDIX.

The diagnosis of disease of the vermiform appendix from pelvic inflammation due to disease of the uterine appendages is often a matter of great difficulty. The co-existence of the two conditions is of special interest, and a case reported in the October-November number of the *Bulletin of the Johns Hopkins Hospital*, by Dr. Hunter Robb, resident gynæcologist to the Johns Hopkins Hospital, Baltimore, is perhaps unique. Rupture of a tubal sac took place early in gestation, and a large hæmorrhagic effusion, presumably of slow formation, took place. The autopsy disclosed also perforation of the vermiform appendix, a condition that had been suspected during life. Most instructive remarks by Dr. William H. Welch are appended, interesting more particularly with reference to the cause of the patient's sudden death.

AN AUDIBLE AURAL MURMUR.

Dr. S. Szenes, of Pesth, has reported in the *Internationale klinische Rundschau* a case of which we find an abstract in the *Centralblatt für klinische Medicin*. A girl, ten years old, complained of a constant "ticking" in the left ear. The power of hearing was normal in each ear, but the drum membranes were cloudy and thickened in spots. The murmur could be heard plainly at a distance of about five inches. It had the character of a snapping sound, and was heard from 120 to 136 times a minute, whether the child was awake or asleep. It was not synchronous with the heart's action, and was supposed to be caused by rhythmical spasmodic contractions of the tensor tympani, or of the muscles of the soft palate.

THE MARIANI ALBUM.

We have received the first number of the *Album Mariani*, of which it is announced that there are to be fourteen numbers, each containing twenty-four portraits etched by M. A. Lalauze. Among the portraits in the first number is that of Dr. Charles Fauvel. Each portrait is accompanied by a brief account of the subject, and by some expression by him or her, in prose or verse or in the form of a few bars of music, addressed to M. Mariani, the Paris pharmacist, who is well known for his success in popularizing certain preparations of coca. The work is beautiful in conception and in execution.

MEDICINE IN GENERAL LITERATURE.

Lyon médical calls attention to an amusing passage in a story entitled Le Mari de Suzanne, published several years ago in the *Revue des deux mondes*. The passage may be translated thus: "In a few panting words she apprises me that Pierre . . . was attacked with a membranous angina after my departure, that from the first symptoms Félicien watched him, that he was obliged to make an incision into the artery [*à l'artère*], and that at this very time he had just averted a fatal crisis by applying his lips to it. I listen mute, paralyzed with emotion."

A NEW GYNÆCOLOGICAL JOURNAL.

The first number of the *New York Journal of Gynæcology and Obstetrics*, dated November, 1891, has reached us. The new journal is a monthly of sixty-four pages, edited by Dr. A. H. Buckmaster and Dr. J. D. Emmet. The number contains an excellent portrait of the late Dr. Fordyce Barker and a goodly array of contributed and editorial articles.

VIRCHOW'S BIRTHDAY MEDAL.

The great gold medal recently presented to the Berlin pathologist on his seventieth birthday contains almost six pounds of material, representing a value of nearly $1,800. It bears the legend *Omnis cellula a cellula.*

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 17, 1891:

DISEASES.	Week ending Nov. 10.		Week ending Nov. 17.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	38	18	39	14
Scarlet fever	99	10	134	20
Cerebro-spinal meningitis	3	1	1	2
Measles	50	2	36	4
Diphtheria	127	52	112	39
Small-pox	0	0	0	0
Erysipelas	0	0	0	0
Varicella	0	0	4	0
Pertussis	0	1	9	0
Croup	0	33	0	0

The Results of the Recent Gale.—"In consequence of the unusually heavy gales and high seas experienced by the incoming steamers of late, a number of the passengers have been more or less severely injured. On board the Augusta Victoria a curious accident happened to a mother and daughter, who were standing together when the ship gave a violent lurch. Each put out her arms to protect herself, and their elbows came together. When they were picked up it was found that the mother's left elbow joint and the daughter's right elbow joint were both dislocated."—*Boston Medical and Surgical Journal.*

The Death of Dr. John Clarkson Jay, of Rye, N. Y., the father of Dr. John C. Jay, Jr., of New York, occurred on Sunday, the 15th inst. The deceased, who was eighty-three years old, was a distinguished contributor to our knowledge of conchology.

The New York Surgical Society.—Dr. A. G. Gerster has been elected president, Dr. J. A. Wyeth vice-president, and Dr. A. J. McCosh secretary.

The University of Vermont.—Dr. J. R. Hayden, of New York, has been appointed lecturer on venereal diseases.

The New York Post-graduate Medical School and Hospital.—Dr. J. West Roosevelt has been elected professor of clinical medicine.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 8 to November 14, 1891:*

Hall, William R., Captain and Assistant Surgeon, is relieved from Fort Schuyler, New York, and assigned to duty at Angel Island, Cal.

Fisher, Henry C., First Lieutenant and Assistant Surgeon (recently appointed), is ordered to Fort Riley, Kansas, for duty.

Shaw, Henry A., First Lieutenant and Assistant Surgeon (recently appointed), is ordered to Fort McKinney, Wyoming, for duty.

Dunlop, Samuel R., First Lieutenant and Assistant Surgeon (recently appointed), is ordered to Fort Sill, Oklahoma Territory, for duty.

Kieffer, Charles F., First Lieutenant and Assistant Surgeon (recently appointed), is assigned to duty at Fort Sheridan, Illinois.

Meriwether, Frank T., First Lieutenant and Assistant Surgeon (recently appointed), is assigned to duty at Fort Adams, Rhode Island.

Ten Eyck, Benjamin L., Assistant Surgeon, is granted leave of absence for one month, to take effect about the 15th inst.

Mearns, Edgar A., Captain and Assistant Surgeon, is relieved from duty at Fort Snelling, Minnesota, and assigned to duty at Fort Mackinac, Michigan.

Willcox, Charles, First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Bowie, Arizona Territory, and assigned to duty at Fort Gaston, California.

Clendenin, Paul, to be assistant surgeon with the rank of captain, after five years service, in accordance with the act of June 23, 1874. November 5, 1891.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending November 14, 1891:*

Gatewood, J. D., Passed Assistant Surgeon. Detached from the U. S. Steamer Despatch and granted two months' leave of absence.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the two weeks ending November 7, 1891:*

Vansant, John, Surgeon. To proceed to New Orleans, La., as inspector. November 7, 1891.

Murray, R. D., Surgeon. To rejoin station at Key West, Fla. October 30, 1891.

Peckham, C. T., Passed Assistant Surgeon. To proceed to Memphis, Tenn., as inspector. November 7, 1891.

Guitéras, G. M., Assistant Surgeon. To assume command of Gulf Quarantine Station. October 30, 1891.

Decker, C. E., Assistant Surgeon. Assigned to duty at San Francisco, Cal. October 30, 1891.

Appointment.

Decker, Charles E., of Michigan. Commissioned as assistant surgeon by the President. October 27, 1891.

Society Meetings for the Coming Week:

Monday, *November 23d:* Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

Tuesday, *November 24th:* New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); Buffalo Obstetrical Society; Boston Society of Medical Sciences (private).

Wednesday, *November 25th:* New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Auburn, N. Y., City Medical Association; Medical Society of the County of Albany; Berkshire, Mass., District Medical Society (Pittsfield); Philadelphia County Medical Society.

Thursday, *November 26th:* New York Academy of Medicine (Section in Obstetrics and Gynæcology); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

Friday, *November 27th:* Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

Saturday, *November 28th:* New York Medical and Surgical Society (private.)

Letters to the Editor.

THE NOMENCLATURE OF THE INTESTINAL CANAL.

Cleveland, O., *November 11, 1891.*

To the Editor of the New York Medical Journal:

Sir: A recent article in your Journal by Dr. William Bodenhamer, of New York, contains the following remarkable statements:

"The ancients never applied the word *rectum* to any portion of the intestinal canal, either in animals or in man. Previous to the fourteenth century the intestines were not divided by anatomists into the several named portions which now obtain. This division was first made by the able professor of anatomy, Mundinius, of Bologna. He was the first anatomist who distinguished the intestines into *duodenum*, *jejunum*, *ileum*, *colon*, and *rectum*. . . . The appellation *rectum*, then, and its application to the terminal portion of the intestines, can not be attributed to the ancients, as it unjustly has been, inasmuch as this event took place so many centuries subsequent to the times of the ancients properly so called."

It is impossible for me to see how Dr. Bodenhamer can justify such statements by a reference to the ancients themselves. The terms *jejunum*, *cæcum*, and *rectum*, applied to different portions of the intestinal canal, may be found on a single page of Celsus. Pliny uses the terms *colon* and *rectum*, and one or more of the Greek equivalents of all these terms (except *ileum*) may be found in the Hippocratic Collection, in the writings of Aristotle, in those of Rufus of Ephesus, and even in the works of Galen, whom the writer eulogizes so highly. Indeed, Galen ascribes the name *duodenum* (or rather its Greek equivalent) to the famous Herophilus, and gives, further, the reason why this title was selected for a certain portion of the intestines.

The term *ileum*, as applied to a division of the intestinal canal, is indeed not found in classical antiquity, and may possibly have been coined by Mondino. At all events, it appears in medical writings about his period.

H. E. Henderson, M. D.

REPEATED SYPHILITIC INFECTION.

34 East Twenty-ninth Street, Chicago, *October 13, 1891.*

To the Editor of the New York Medical Journal:

Sir: The following report of a case of syphilis may prove of interest to some of your subscribers, and, from its unusual features, may be worthy of record:

J. B. O., male, single, and now thirty years of age, applied to me for treatment in October, 1887. He was then troubled with typical gummy growths in the cutaneous tissues, and gave a clear history of primary sore and secondary eruption a year before. Under a vigorous use of mercury for a year he appeared well, and I discharged him as recovered. About four months after this he applied to me again with three sores on the prepuce and glans, two of them appearing like soft chancres and healing readily, the third being persistent and a typical hard chancre; the neighboring lymphatics were enlarged, but hard and persistent, non-suppurating. Contact had been so recent and frequent that no history of an incubation period could be obtained. Suffice it to say that this was followed by a roseolar rash and mucous patches in the mouth, a papillary eruption, falling of the hair, and all the other clear secondary manifestations. Another year and a half of treatment was studiously followed, and he was again discharged. Two months ago he came to me again with a typical hard chancre and two small soft ones, the latter yielding readily as before, the former persisting and having all the characters of a genuine primary syphilitic sore. The secondary symptoms appeared about a month later in a beautiful roseolar rash on the whole body; the lymphatics are typical of secondary infection. He now has small mucous patches in the mouth, and he is moulting again for the third time. Each of the secondary attacks which I have seen was accompanied by the usual syphilitic pains, rise of temperature, and general malaise of syphilitic fever. He once more worships Mercury. W. E. MORGAN, M. D.

ASHEVILLE, N. C., AS A WINTER RESORT.

ASHEVILLE, *October 19, 1891.*

To the Editor of the New York Medical Journal:

SIR: In your issue of September 12th Dr. F. Peterson makes some remarks about the observations of the United States Signal-Service Station at this place, which I have referred to the observer, whose answer I add to this letter.

In regard to the amount of personal equation that must be eliminated from my opinion of the Battery Park Hotel, I desire to say in defense of myself that it is practically *nil.* The Battery Park has its own resident physician, to whom all cases are referred. Outsiders do very little practice there. If the doctor can not send any one to the Battery Park he has his choice of the Winyah, whose very existence he persists in ignoring, the Kenilworth Inn, and The Belmont. The first is Dr. von Ruck's sanitarium, and the latter are new first-class hotels, which I may venture to praise, as one is three miles and the other five miles from my residence.

I add the letter from the United States Signal-Service Station. H. LONGSTREET TAYLOR, M. D.

ASHEVILLE, N. C., *October 16, 1891.*

H. Longstreet Taylor, M. D.

DEAR DOCTOR: In reply to yours of October 10th, the observations made at this station correspond to your previous statement as regarding the meteorological data. It is, however, quite possible that Dr. Peterson observed fogs from and at the Oakland Heights during his stay there, and if he knows but little of the causes which produce them, he should understand that the conditions for their recurrence are favored by the French Broad River Valley, which is several hundred feet lower than Asheville and in close proximity to the hotel where he stopped. This station would not record the occurrence of fog there for the reason that, being two miles distant, it could not be observed, and Oakland Heights, being in another township, has really nothing to do with the observations for the city of Asheville. Neither would the common occurrence of fog over a river bed justify the report of fog for the large area included in our city limits. On the whole, it appears to me that, Asheville's winter climate being so well and favorably known by the profession, the latter is not likely to accept the statements of a writer to the contrary, based as they are upon a few days' sojourn and at a time when the weather was unusually bad not only in Asheville but all over the country, and it can readily be seen that conclusions based upon such insufficient data as are those of Dr. Peterson have no value whatever.

Very truly yours, KARL VON RUCK,
Observer, United States Signal-Service Station.

THE USE OF GUAIACOL.

NEW YORK, *October 15, 1891.*

To the Editor of the New York Medical Journal:

SIR: Referring to my article upon the administration of guaiacol iodide (*N. Y. Med. Jour.*, September 26, 1891), I did not specify any particular formula for its administration, for the reason that physicians usually prefer to use their own judgment in the application of remedies.

Guaiacol—monomethylcatecol—is, as is well known, one of the component parts of creasote, and possesses all of the antiseptic properties of creasote and is free from many of the objections to that drug. When properly prepared, it forms a safe and potent antiseptic in the treatment of pulmonary consumption.

Its administration in an enema places it completely under the physician's control, for he is able to increase or diminish the dose to the quantity necessary to produce and maintain any degree of asepsis he may desire. I prepare the iodo-guaiacol by adding four grammes of iodine to thirty-two grammes of guaiacol (Merck's), using gentle heat if necessary. After the iodine is dissolved I add fifteen hundred grammes of pure olive oil. A fluidounce of this mixture contains about an eighth of a grain of iodine and five grains of guaiacol, and constitutes a minimum dose for an adult. It is advisable to begin the treatment with this quantity, and gradually increase it until the full effects of the drug are produced, which may be known by its effects upon the urine and by the patient observing the peculiar taste of the guaiacol. WILLIAM H. GREGG, M. D.

THE DETERMINATION OF THE SEX OF THE FŒTUS.

ROLLA, MO., *November 9, 1891.*

To the Editor of the New York Medical Journal:

SIR: Soon after reading the article entitled The Determination of the Sex of the Fœtus in Utero, in the issue of October 24th, I was called to attend Mrs. W., who "claimed" to have gone fifteen days over her time, and that all the movements of the child had been felt on the left side. On examination, I found a very large head. Led by Dr. Ross's positive knowledge, I assured the patient that she would have a male child. The labor was tedious, and I delivered her with forceps of what proved to be a girl baby. Thus we see that "all signs fail in dry weather." J. L. SHORT., M. D.

THE USE OF FRUITS IN DIARRHŒAL DISEASES.

KANSAS CITY, MO., *September 30, 1891.*

To the Editor of the New York Medical Journal:

SIR: The numerous writers upon the question of infant foods and infant feeding all recognize fresh milk as possessing an antiscorbutic element of great value in the proper nutrition of the child, but in all their systems of infant feeding, where this fresh milk can not be obtained, they do not lay sufficient stress upon this point, and do not try substitutions of other forms of nourishment to take the place of this antiscorbutic element contained in human milk.

Writers attempt the approximation of cow's milk to that of woman by the addition of water, lime water, milk sugar, etc. Some, like Dr. A. V. Meigs, use cream diluted with sugar and water; others, sterilized milk, lime water, peptogenic milk powder, etc.; others still, Mellen's food, and so on through the list, but none of them dwell as they should upon the importance of a substitute for that antiscorbutic element contained in fresh milk.

Many of our cases of acute dyspeptic diarrhœa, cholera infantum, and acute enterocolitis pass into chronic dyspeptic diarrhœa and chronic enterocolitis, leading to atrophy of the follicles and glands engaged in the secretion of digestive fluids. In these classes of cases antiscorbutic foods will save hundreds of children.

The tables constructed by Seibert regulate infant feeding by the weight of the child as to quantity, and there are other systems by Mabbott, Starr, Meigs, and others; but it is folly to feed after such tables when a child is slowly sinking from atrophy and want of that antiscorbutic element necessary in the blood.

It is a well-known fact that the want of vegetable food by sailors, while upon long voyages on the high seas, leads to scurvy; but this can be prevented by the use of raw beef juice, and need not depend upon the absence of vegetable food. I have had most excellent results in the use of fruits, the ripe peach being one of the most easily digested of fruits, containing over seven per cent. of pectous substance. This, when perfectly mellow, can be dissolved in the child's mouth by the simple pressure of the tongue. Such fruits must be mellow, so that no hard particles enter the child's stomach, and must be in condition ready for absorption. When the peach can not be obtained, raw beef juice or other ripe mellow fruits can be used, but not with the success attending the use of the peach.

Let this antiscorbutic element be considered more by physicians while attempting to raise children upon dry dead foods, and I will guarantee many children will be saved when about to pass into those various chronic stages of digestive diseases among children. J. W. Kyger, M. D.

Proceedings of Societies.

NEW YORK STATE MEDICAL ASSOCIATION.

Eighth Annual Meeting, held at the Mott Memorial Hall, New York, October 28, 29, and 30, 1891.

The President, Dr. Stephen Smith, of New York, in the Chair.

The President's Address.—Dr. Smith took for the subject of his opening remarks The Art of Teaching Medicine. He thought that every teacher should bear in mind Bacon's quaint saying—"He that questioneth much shall learn much"—and should not allow the student to be simply receptive. Upon first thought, it would hardly seem necessary to enunciate such well-known principles, but it must be remembered that our present methods of teaching medicine were unique. The medical student read medicine, and his individuality was lost in the class, and the whole policy of most medical schools seemed to be to make the professors, and not the students, the prominent objects of interest.

The ideal method of teaching medicine would, he contended, be by dividing the classes into small sections, grading the students according to their individual capacity and proficiency. Recitations could be held at proper intervals, and practical demonstrations given wherever practicable. The knowledge of each student would be tested by examination before he would be permitted to pass to the next grade. That we could thus revive the ancient art of teaching medicine had already been practically demonstrated with gratifying success in one of our large metropolitan schools.

The Use of Chloroform in Labor.—Dr. Elbert T. Rulison, of Montgomery County, read a paper on this subject, in which he urged the more general employment of chloroform during labor, in order to relieve pain, diminish shock, and avoid the too frequent rupture of the perinæum. He advised the cautious administration of this anæsthetic with a Battershall inhaler, carefully avoiding full anæsthesia.

Dr. Ogden C. Ludlow, of New York County, indorsed the conclusions of the author. He preferred chloroform to ether in all except cases requiring severe and protracted operation, as he considered the greater control over delivery given by chloroform more than counterbalanced any dangers inherent to the anæsthetic agent itself. The best inhaler, and one always accessible, was a tumbler, into which was pressed a dampened handkerchief or some absorbent cotton.

Dr. M. W. Townsend, of Genesee County, considered the routine use of any anæsthetic in these cases meddlesome midwifery. He deprecated the too common practice of administering anæsthetics rapidly, and in such a way as to produce partial asphyxia. In cases of labor, when he deemed it necessary to employ chloroform, he always required the patient to count aloud slowly, and when she ceased counting the anæsthetic was immediately withdrawn.

Dr. S. J. Murray, of New York County, only employed ether, and, while favoring the use of anæsthetics in these cases, he did not advocate their employment in every case of labor.

Forced Respiration.—Dr. George E. Fell presented further observations on his method of forced respiration. In the proceedings of this association for 1888 he had reported the saving of five lives by himself and one by a foreign physician according to this method. Since then he had saved three more patients, and a number of other physicians had met with like success. While this method had chiefly been used in cases of opium poisoning, it would probably prove equally useful in cases of drowning and of traumatic shock. The speaker then brought forward his claims to priority, desiring to place them beyond further dispute. He exhibited the apparatus which he employed for forced respiration, and cited one or two of his recent cases. It was interesting to note that forced respiration had been employed for many hours at a time without any damage to the patient's lungs, and that on various occasions when Sylvester's method of artificial respiration had proved utterly futile, this plan had brought prompt relief and in many instances a cure.

Preventive Medicine.—In a paper on this subject, Dr. Henry C. Van Zandt, of Schenectady County, deprecated the traditional reluctance of physicians to educate the masses on medical subjects, thus actually favoring the development of quackery. The advanced state of sanitary science among the Jews up to the time of their scattering abroad among other nations probably had much to do with their previous longevity. It was stated that the human race arose from dust, and it certainly seemed as if the mass of mankind had a constant desire to return to their original condition. Modern sanitary science was responsible for a remarkable lowering of the death-rates in many of our principal cities, and an increase in the average duration of human life.

The Theories of Rheumatism.—This was the subject of a paper by Dr. John Shrady, of New York County. A study of the much-vexed question of diet in its relations to rheumatism, he said, did not yet admit of definite conclusions, but in this connection the observations of Dr. Alexander Hadden on animals were interesting. This observer maintained that granivorous animals were most often affected by rheumatism, and pointed to the frequency with which birds had calcareous deposits. The author was not willing to admit the truth of the microbic theory of rheumatism, and he thought the drift of modern opinion concerning the ætiology of rheumatism was in the direction of an irritant seeking the most convenient way of escape from uncongenial surroundings.

Acute Diffuse Peritonitis.—The discussion on this subject was opened by Dr. Alfred L. Carroll, of New York County, who first spoke of the histology of the peritonæum. A large part of the peritonæum was devoted to suspensory purposes, or formed extravagant pouches, which gave an enormous extent of endothelium, the stomata of which were connected with an elaborate system of lymphatics. In short, its function of lubrication was subordinate to that of absorption. The character of the exudation depended chiefly upon the ætiology. The plastic form was oftenest seen where the peritonitis arose from an extension of the inflammation from subjacent organs, or from contusion and manipulation. The speaker did not think it was proper to ascribe the origin of the pus and other cell elements in these exudates exclusively to the migration of leucocytes. The part played by micro-organisms, or the products of fermentation caused by them, had not yet been determined; it was a problem for future bio-chemistry to solve. The diagnosis was not infrequently a matter of some difficulty from the fact that some cases ran an apyretic course, or were even accompanied by a subnormal temperature, and because even the classical symptom—pain—might be absent. In forming the first opinion, there were often only the physiognomy and the decubitus to guide the diagnostician. The diagnosis was still more difficult when diffuse peritonitis supervened upon pre-existing maladies or upon traumatism.

Referring to the question of treatment, the speaker said that he desired to emphasize the general proposition that the therapeutic indications were not only modified by, but were altogether dependent on, the causative factors. Where intense pain menaced the heart, morphine was temporarily useful, but where surgical measures were imperatively demanded, as in cases where the inflammation was caused by penetrating or strangulating local lesions, no further reliance should be placed on this drug. In other than surgical cases peristalsis was a bugbear and was inconsistently dreaded, for when tympanites occurred peristalsis ceased. Small, persuasive doses of calomel at an early stage would often happily prepare the way for slowly administered enemata. Belladonna deserved more attention than it had hitherto received, as it deadened the sensibility of the nerve-centers and allayed pain, it diminished reflex irritability, and tended to relieve constipation and to support the heart, embarrassed as it was by pulmonary compression as well as by its own enfeeblement. The success achieved by Mr. Tait in some of his cases by the *early* administration of a Seidlitz powder might have been due to these being really instances, not of peritonitis, but of the "fever of non-elimination."

Where a purulent exudation was present, or likely to occur, quinine, which retarded leucocytic migration, was indicated. The use of stupes and light warm fomentations was more philosophical than the depressing refrigeration of ice-coils. In severe cases a tendency to a lowering of the temperature was often of evil omen, and when this existed it should exclude the use of all depressants.

Dr. HENEAGE GIBBS, of Michigan, sent a contribution to the discussion. In it he referred to the comparative anatomy of the peritonæum and the relations which the blood-vessels and lymphatics bore to this important membrane. He then detailed experiments which he had made on animals. Fluids containing pure cultivations of various micro-organisms were injected into the peritoneal cavity with negative result, but when such injections were made in the systemic circulation, plugging up of the vessels and other marked effects were noticed. Apparently the lymph which exuded into the peritoneal cavity was capable of rendering a certain quantity of noxious material innocuous. He had even injected tubercular material into the peritoneal cavity without its giving rise to the slightest tubercular inflammation of the peritonæum.

Dr. VICTOR C. VAUGHN, of Michigan, also sent a paper on this subject. He dealt particularly with the relation of micro-organisms to peritonitis. No one species of organism had been found invariably present. If the peritonæum was entirely free from irritation, the injection of germs dissolved in distilled water had no effect; but if the solution contained, for instance, bits of agar-agar, peritonitis would follow the injections. Peritonitis could be induced by the injection of sterilized emulsions containing one drop of croton oil, the absence of micro-organisms being proved by culture experiments. Sterilized preparations of trypsin, when injected into the peritoneal cavity, would produce peritonitis, showing that, aside from contained germs, the contents of the intestines, when introduced into the peritoneal cavity, were sufficient to cause peritonitis.

Dr. E. D. FERGUSON, of Rensselaer County, said that clinically we found cases which did not correspond to the usual ideas of infective peritonitis. There were cases, for example, with clear effusion in which the patients recovered completely with or without paracentesis. As an instance of the difficulty of diagnosis, he cited a case of toxæmia which closely simulated diffuse peritonitis. It was now suspected that operations on the abdominal and pelvic organs had something to do with the development of these toxic substances. The prime object in treatment should be to remove irritation, but, of course, it was often difficult to determine the cause of irritation. Saline laxatives were often useful where such remedies were not absolutely contra-indicated, and at the head of the list he would place Epsom salts.

Dr. HAROLD C. ERNST, of Massachusetts, continued the discussion. He thought it was proved that most acute inflammatory and suppurative action in the human body was due to the activity of one or more forms of bacteria. After detailing some experiments which he had made, he concluded that acute peritonitis could not be produced in the lower animals except as a result of the action of bacteria or their products.

Dr. JOHN CRONYN, of Erie County, spoke of metastatic inflammation of the peritonæum, and cited a case in which the diagnosis of metastatic tubercular peritonitis, occurring in a patient having pulmonary tuberculosis, had been fully confirmed by the post-mortem examination. A point of practical importance in the treatment of peritonitis was the administration of a combination of opium with quinine. By associating these drugs, larger doses could be given without producing either narcotism or cinchonism.

Dr. GEORGE T. HARRISON, of New York County, treated of the subject from the standpoint of the gynæcologist. When peritonitis was well established, purgatives could only be harmful. He had never seen the symptoms ameliorated by warm applications, while the employment of ice in bags or coils moderated pain and peristalsis, often localized the inflammation, and made the patient comfortable without resort to large doses of opiates.

Dr. WILLIAM MCCOLLOM, of Kings County, entered an emphatic plea for the recognition of an idiopathic form of peritonitis, basing his remarks on the known liability of certain individuals to disease of the serous membranes, as well as upon his personal experience. At one time he had practiced medicine in Vermont, where the winters were severe and the temperature very variable. During his practice in this region he had frequently treated cases of peritonitis occurring almost exclusively in males whose occupations had exposed them to the inclemency of the weather. At the time referred to Dr. Alonzo Clark was a medical professor in Vermont, and was urging the adoption of the opium treatment. The speaker had ever since then employed this plan of treatment, and he hoped that the profession would be slow to relinquish a method which had stood the test of about forty years of practice to go back to the use of laxatives and the avoidance of opium—a plan which had proved very unreliable.

Dr. NICHOLAS SENN, of Chicago, spoke of the different varieties of peritonitis. The plastic form he described as a process which remained circumscribed, and in this respect it was widely different from septic peritonitis, where the primary cause continued to multiply. Owing to absence of pain and fever, and to the existence frequently of even a general feeling of well-being, many cases of virulent puerperal peritonitis were often not recognized during life. The pulse, which rapidly rose to 150 or 200 a minute, was, however, significant. The speaker related the history of a case which he had recently seen in which the diagnosis had seemed to lie between ascites and a large ovarian cyst. He had personally looked upon the case as one of tubercular peritonitis with localized ascites. On performing laparotomy, nothing but a true ascites could be found, and recovery had followed the employment of drainage for several weeks. The case had been, in fact, one of hydrocele on a large scale—a passive form of peritoneal inflammation, not due to infection from without, but to a loss of equilibrium between secretion and absorption. He believed these cases were more frequent than was usually supposed. Some of the previous speakers had expressed doubt as to the existence of *idiopathic* peritonitis, but, reasoning from our knowledge of such inflammations in the meninges and pleura, he wished to express most emphatically his belief in the existence of this form of peritonitis.

Dr. H. O. Marcy, of Boston, thought that laparotomies in cases of tubercular peritonitis often resulted in great benefit to the patients, although the reason for this might not yet be well understood. He cited one case in which frrequent and large tappings of the abdomen had failed to prevent rapid re-accumulation, but where a cure was promptly effected by establishing constant drainage. The explanation was probably to be found in the consequent relief of the mesentery from undue pressure. He concluded by referring to statistics showing the safety of exploratory laparotomy, and advising a more frequent resort to this very valuable measure.

Dr. T. D. Strong, of Chautauqua County, thought that the degree of tolerance to opium was, to a certain extent, a measure of the severity of the attack. In one very desperate case, occurring in a boy of ten years, eighteen grains of morphine were administered in thirty-six hours, and up to this time the lad had appeared in no way drowsy and had still complained of pain. When this point was reached a change for the better took place, and the patient made a slow but complete recovery. When, in consultation, the speaker met a physician who was too timid to carry out this remarkable method of treatment in its integrity, he always turned away from the case with the conviction that the patient's doom was sealed.

Peritonitis in Early Life.—Dr. J. Lewis Smith, of New York, in a paper on this subject, expressed the opinion that no age was exempt from peritonitis. As long ago as 1838 Sir James Simpson, of London, had published a monograph in which he had presented facts to show that the fœtus sometimes became non-viable and perished in consequence of peritonitis, and that the most common cause of this was inherited syphilis. A number of other cases of this kind were on record. It might prove fatal either before birth or, if the child was born alive, death usually soon resulted. Peritonitis of the newly born was by no means uncommon. Bednar had reported 165 of these cases, of which 102 occurred within the first two weeks of life, 63 within the first four weeks, and the rest within the first four or five months. The inflammation in these cases was commonly caused by septic matter which entered the system at the umbilicus from foul umbilical dressings, foul water employed in washing, etc. Microbes were believed to be the pathogenic factor.

Primary or idiopathic peritonitis was that form occurring without any antecedent disease which might give rise to it. It was denied by some writers that this ever happened. That it did occur, however, and not infrequently, was proved by the number of cases reported by different observers. Dr. Samuel West, of London, had reported such a case at the meeting of the Clinical Society of London, November 13, 1885. Another was cited in the *British Medical Journal*, vol. i, p. 547, 1870.

During infancy and childhood peritonitis might occur from a considerable number of causes. It might arise from septic infection or blood poisoning where a favorable condition existed. It not infrequently occurred in connection with erysipelas. It might result from disease of the abdominal viscera—more frequently from the hollow organs than from the solid viscera. A potent cause of peritonitis was appendicitis or typhlitis. Children, less frequently than adults, had ulceration of Peyer's patches in typhoid fever, but it sometimes did occur with subsequent perforation and fatal peritonitis. Another cause of peritonitis was traumatism. Blows on the bladder, testicle, and abdomen had been reported as causing it. A case of fatal peritonitis was on record following tapping for a congenital hydrocele. In females it might result from gonorrhœa, the inflammation passing from the vagina to the uterus, and thence through the Falloppian tubes to the peritonæum. Tuberculous peritonitis occurred much more frequently in infancy and childhood than in adult life.

The symptoms of peritonitis in children, the reader said, were usually quite distinct, although in some cases they were so obscured that it was a very difficult matter to make a diagnosis. The treatment must be early and judicious. The indication was to subdue the inflammation as soon as possible, and at the same time employ such dietetic and medicinal remedies as would sustain the strength and prevent heart failure, which was the ordinary cause of death. It is important that the patient should remain quietly in bed, with the least possible movement of the body and lower extremities. Purgatives, in the ordinary forms of peritonitis, acted injuriously in children as in adults. During the active period of the disease it was better not to employ any treatment whatsoever for the purpose of opening the bowels, even if one or two weeks elapsed without a stool. As for drugs, opiates were the chief reliance. They relieved not only the tenderness and pain, but also the vomiting. They produced a quiet state of the intestines. The opiate might be given in doses sufficiently large to produce this effect. A child of twelve years could take half a grain of opium every two or three hours, or sufficient to secure sleep. The removal of the cause of the disease, if it could be effected by means of a surgical operation, should be carefully considered.

Dr. E. G. Janeway, of New York, said that the diagnosis of acute peritonitis was at times extremely difficult. Tympanitic distention of the bowels might be present, as well as pain and fever, without any peritonitis, and it was only by closely watching these cases that a correct conclusion could be arrived at. Citing a case, the speaker said that a boy, four years old, had suffered from high fever and constipation; the pain had begun in the right iliac fossa and the tenderness was so considerable that he had to be examined under chloroform. This condition had continued for four days, all the symptoms pointing to peritonitis. On the fourth night the boy slept well and the next morning his temperature was 99° and two days afterward he was well enough to go out. A pneumonia or a pleurisy might produce reflex pains over the abdomen, with marked distention. The symptoms of peritonitis might also be simulated by hepatic colic, or more rarely by renal colic; in this condition we might get the fever, the distention of the abdominal walls, and the pain. Then, again, we might have cases of peritonitis accompanied by diarrhœa, without fever and with very slight pain.

The Surgical Treatment of Pyloric Stenosis.—This formed the subject-matter of the address on surgery, by Dr. Nicholas

Senn, of Chicago. He divided his topic into: 1. The operative treatment of cicatricial stenosis of the pylorus. 2. The operative treatment of carcinoma of the pylorus.

Cicatricial stenosis of the orifice of the pylorus of the stomach, Dr. Senn said, frequently followed ulceration or traumatism in this location. The usual clinical symptoms were developed, and were first due to the obstruction to the passage of the food and later to the compensatory hypertrophy and dilatation of the walls of the stomach. The operative treatment of a cicatricial stricture at the pyloric end of the stomach consisted in performing pylorectomy, in digital divulsion of the stricture through the wound in the stomach, and in the formation of a new pylorus by the pyloro-plastic operation of Heineke-Mikulicz; or in establishing a new outlet from the stomach into the upper portion of the small intestines by making a gastro-enterostomy.

The speaker then gave the history of fifteen cases where he had operated for the relief of pyloric stenosis, and explained in detail the *modus operandi* of the operation. In concluding his paper, he stated the following propositions:

1. Pyloroplasty, as devised by Heineke-Mikulicz, is the safest and most efficient operation for cicatricial stenosis of the pylorus.

2. Pylorectomy in the treatment of carcinoma of the pylorus is a justifiable procedure when the disease is limited to the organ primarily affected, and when the patient's general health furnishes no contra-indication.

3. Gastro-enterostomy by the aid of large, moist perforated plates of decalcified bone should be resorted to in the treatment of malignant stenosis of the pylorus as soon as a positive diagnosis can be made and a radical operation is contra-indicated.

The Treatment of Tuberculosis.—In a paper with this title, Dr. F. M. Warner, of New York County, said that the weight of authority was with those who believed that very young infants afflicted with tuberculosis had acquired it by the ingestion of milk or of some other substance infected with the tubercle bacilli. What was inherited was a suitable soil for the development of the bacilli. Referring to prophylaxis, he spoke particularly of the danger to the public health from lack of attention to the proper cleansing and disinfection of railroad cars. He detailed the histories of nine cases which he had treated with Koch's tuberculin, most of these showing decided improvement, and two being apparently cured. The antiseptic treatment of pulmonary tuberculosis by inhalations of creasote and terebene, and the internal administration of creasote, had resulted in a marked diminution of cough, but it had not arrested the progress of the disease.

Dislocation and Fracture of the Vertebræ.—This was the subject of a paper by Dr. Charles W. Brown, of Washington, D. C. In the treatment of these conditions he thought the most important point was to immediately etherize the patient, and endeavor to reduce the dislocation by extension and manipulation or by bending the spine across the knee as a fulcrum, and if these efforts proved ineffectual, to cut down upon the vertebra, effect the reduction, and remove any fragments of bone which were likely to become necrosed, or which were found to be pressing upon the cord. Careful studies, both clinical and pathological, had shown that after division of the cord union was not likely to occur under any treatment. Out of 123 recorded cases, 84 were cervical, 30 dorsal, 7 lumbar, and in 2 the location was not stated.

Dr. Robert Newman, of New York County, said, with reference to the use of electricity in these cases, that it was generally taught that galvanism should not be applied until after the subsidence of the acute symptoms, and that after six months of treatment with this agent it was no longer beneficial. The second proposition he considered erroneous, and cited a case in support of this view, as well as to show what could be accomplished by electricity after many months had elapsed between the receipt of the injury and the commencement of electrical treatment.

Dr. Douglas Ayres, of Montgomery County, reported two cases of forward and outward dislocation of the astragalus. He did not consider it possible to formulate an exact course of procedure applicable to all cases of luxation of this bone, owing to various complications which might arise, but in this particular form, and in the two cases which he had reported, and which were apparently typical, the prominent factors in producing the desired result were complete anæsthesia, thus insuring perfect relaxation of the parts, and taking advantage of the best position to make extension and to graduate the force required.

Dr. J. W. S. Gouley, of New York County, exhibited a plaster cast which had been taken a few hours after such an accident. There was about as complete a luxation of the astragalus as takes place in this direction, and the cast showed well the prominence of the head of the astragalus upon the instep. He also presented a patient who had received such an injury on the 28th of last September. The case was admitted into the hospital a few hours afterward, and an immediate attempt was made at reduction by means of manipulation with the hands, carefully avoiding the use of very much force. By flexion, extension, and a little rotation, a few minutes of such manipulation sufficed to effect the reduction. The leg was then enveloped in cotton, a snug bandage applied, and an outer wooden splint. At the end of a week a gypsum bandage was applied, and after eighteen days, or six days ago, this was removed, and the patient allowed to walk around. The application of excessive force, by means of pulleys or similar apparatus, was much more likely to do harm than good. The great point was to effect the reduction within a few hours after the injury, and to do this without violence.

Dr. E. M. Moore, of Genesee County, wished to add his testimony to the inadvisability of employing much force in the attempts at reduction. He also wished to point out the importance of placing the splint at right angles.

Specimens of Entozoa.—Dr. Homer O. Jewett, of Cortland County, exhibited some rat-tailed larvæ which had been voided from the human intestine in two different cases. The specimens were accompanied by a history of these patients and of their surroundings.

Dr. A. L. Carroll said that with the help of another entomologist he had been able to determine that these larvæ belonged to one of two species of *Diptera*—either *Meseron* or *Eristalis*. Their exact place could only be determined by examining the fully developed insects. Although several similar cases were on record, these were the best observed ones which had been reported. Very few physicians were aware how comparatively frequently these pseudo-parasites were present in the human subject. It had been supposed that these larvæ were carried into the stomach by drinking-water or by uncooked vegetation, such as salad.

(*To be concluded.*)

ASSOCIATION OF AMERICAN PHYSICIANS.

Sixth Annual Meeting, held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

The President, Dr. William Pepper, of Philadelphia, in the Chair.

(*Concluded from page 547.*)

Discussion on the Relation between Arterial Disease and Visceral Changes.— Dr. G. L. Peabody, of New York, opened the discussion. He said that the subject was so comprehensive as to require some limitations of an arbitrary character. As announced in the title, it might include the results of atrophic changes in the arteries, amyloid degenerations, hyaline degenerations, the various stages of atheroma, embolism, thrombosis, and numerous other conditions, besides the one of chief importance—namely, arteriosclerosis. It was to some few of the many important relations of the latter condition that the author called attention. Its nomenclature was still in a somewhat confused state, and about the more important circumstance of its ætiological relation, until recently, there had seemed no possibility of agreement. At present, although a definite agreement had not been arrived at, there seemed to be a tendency in such a direction. Thoma had recently said that after working over a kidney in which the process of interstitial inflammation was far advanced, one renal artery showed extensive new growth of the kind under consideration. He concluded that some change in the blood current in an artery must result from an extensive destruction of its capillaries. He also found, from careful studies of the arterial systems of several bodies of fœtuses, and in young children, a condition which led him to conclude that interstitial inflammation was the cause, and not the effect, of the sclerotic process in the artery. He showed in another paper that the so-called organization of the thrombus in the artery after ligature was due to a proliferation of connective-tissue cells from the endothelium of the intima, or its deeper layers, and also in part to a mass of granulation tissue which came from the adventitia, having found its way into the lumen of the vessel through the rent in the media which always occurred at the site of the application of the ligature. In regard to spasmodic contraction of the vessels, this was clearly shown to take place, and had been frequently demonstrated in the retina with the ophthalmoscope. There also seemed to be abundant evidence that this condition occurred in the coronary arteries, as death occasionally took place from sudden cessation of the heart's action without embolic or other permanent closures of sclerosed coronary arteries. The author had diligently sought to find other causes for sudden death in a subject of angina pectoris. Examination of the heart muscle and vessels revealed no degeneration; accordingly it was believed that arterial spasm alone would account for the sudden death.

That this disease should be produced by a lesion in the coronary arteries need only be mentioned. That arterial spasms, localized and general, existed occasionally seemed to be proved by the fact that attacks of angina were often accompanied by a difference in the radial pulses, by a localized area of anæmia, and by increased arterial tension in general. Sudden transitory blindness was known to occur in one or both eyes in conditions of aortic stenosis, and the explanation offered for this was spasm of the cerebral arteries. It was known that in generalized arteriosclerosis sudden complete blindness could occur with no lesion of the eye visible with the microscope. The most plausible explanation seemed to point to vascular changes in the occipital lobes. Fibrous myocarditis was a common lesion following the occurrence of this change in the coronary arteries. Acute thrombotic softening or hæmorrhagic infarction in the myocardium could occur in consequence of sclerotic thrombosis of a coronary artery. This lesion occurred most frequently in the wall of the left ventricle. Senile degeneration of the arterial system was a condition known to exist, causing in some instances gangrene of the extremities. Thoma had discovered the presence of Pacchionian bodies in arteries, and thought that this explained the occurrence of pain in arterial disease. He believed that many of the rheumatoid pains which were felt in the chest in people from thirty-five to forty-five years of age were due to these bodies being present in the blood-vessels. Of late years a condition of phlebosclerosis had been found to exist, but it did not differ from that of arteriosclerosis, either in its clinical symptoms or in its pathological significance.

Dr. W. T. Councilman, of Baltimore, said he would confine his remarks to a study of diffuse arteriosclerosis, on account of the importance of the disease. His researches had been conducted in connection with forty-one autopsies at the Johns Hopkins Hospital. The cases were divided into three classes. To the first division belonged the nodular form of arteriosclerosis. In this the changes were limited to the aorta and large arteries, and in the course of vessels otherwise smooth and of normal caliber—elevated plaques, sometimes translucent and cartilaginous in appearance, sometimes calcified or softened. The second form was the senile endarteritis. In the most typical cases the aorta and all of the larger arteries were converted into almost rigid calcareous tubes. The inner surface was rough, and there were frequently fissures and losses of substance to which thrombi might adhere. The most important class of cases were those belonging to diffuse arteriosclerosis, in which the lesions were widely distributed, embracing all the arteries of the body. Contrary to what was true of senile endarteritis, the subjects of this disease were generally men in the prime of life. Most of their ages ranged between forty and fifty-five. Most of the subjects of the autopsies were strong-built, well-nourished, muscular individuals. As a rule there was no œdema of the face or lower extremities. When it was present it came on in the last weeks of life. Heart hypertrophy was always present and might reach an extreme degree. Close examination often showed some degree of fibrous myocarditis. Anatomical lesions of the valves were usually absent. The most marked changes were found in the aorta and the large arteries given off from it. The large arteries were more or less dilated, the dilatation starting in the aortic orifice and extending throughout the aorta and large arteries. In the large arteries the intima was roughened by projecting elevations, which were frequently distinguished by differences in color and consistence. There might be areas of softening or there might be more or less calcification. The histological changes in the kidney consisted of various degenerative changes in the epithelium, or an increase in the connective tissue, and of widespread lesions in the arteries, especially affecting those of very small caliber. The glomeruli were variously altered, and many were found completely atrophied and converted into a mass of dense hyaline tissue, which contained a few stellate or spindle-shaped cells. In nearly all of them the most marked feature was a thickening of the capillary walls, even to the extent of obliteration in some cases. This diffused arteriosclerosis which the author described agreed with the form that Thoma called secondary sclerosis and in which he considered that the change in the large arteries was due to the resistance to the blood circulation that the diseased small arteries caused. The assumption that secondary arteriosclerosis was due to an increased blood pressure in the aorta from the increased peripheral resistance could not be proved. It would be difficult to conceive of any series of pathological conditions so closely bound together, and in which every lesion tended to intensify some preceding lesions, as were seen in this disease. Diffuse arteriosclerosis was a definite disease, and should not be confounded with senile endarteritis. The lesions in the arteries and tissues formed a pathological entity, and the primary lesion to which all the changes were due was a degeneration of the tissue of the media of both the large and smaller arteries.

Dr. William M. Ord, of London, said that he was convinced, from researches in this direction, that the disease was due to particular change in the media, going on in some instances to degenerations in the adventitia and intima. Whether such changes were due to renal disease or to constitutional troubles had been a question, but the speaker was satisfied that it was not merely a disease of the kidney, as his experience had shown the arteries to take on this form of disease in certain constitutional conditions, such as rheumatism and gout. He was able to recall many cases of men who in the prime of life began to fail in health without any appreciable cause at first, and who when examined were found to have granular kidney. These men were what were called high livers and among them gout was a frequent disease. He thought that the cases of sudden death referred to by Dr. Peabody were probably due to miliary aneurysms, which were frequently present in the sclerosed conditions of the arteries. It was seldom that cerebral hæmorrhage occurred in young children without miliary aneurysms existing. The speaker described a case that had occurred in his practice which substantiated this view.

Dr. GAIRDNER said that Dr. Peabody had not mentioned dissecting aneurysm as a condition that was likely to exist where there was arteriosclerosis. As a matter of fact, this state of separation of the walls of the arteries had been found by the speaker in a number of instances, and seemed to be due to some strain of the vessel in its diseased condition. He related the case of a young healthy man who had jumped from a height of some twenty feet. Death followed in a short time. When the autopsy was made it was found that the shock had split an artery in the brain and a dissecting aneurysm was the result. If such a condition as this could take place in healthy vessels, what could not happen to diseased ones?

Intestinal Perforation in Typhoid Fever.—Dr. R. H. FITZ, of Boston, read a paper with this title. This complication was found in about one per cent. of all cases of typhoid fever, and was the cause of death in something more than six per cent. of the fatal cases. It rarely occurred in children, and was twice as frequent in men as in women. It was present in the small intestines in more than four fifths of the cases in which it occurred, and usually proved fatal during the first week after its occurrence. It took place in mild or severe cases, and its symptoms might be absent or latent, gradual or severe. Differences of opinion concerning its prognosis had existed for years and were based upon a lack of agreement as to the value of the symptoms. Though these were often called characteristic, they gave evidence only of a peritonitis, general or circumscribed. This might in typhoid fever result from a variety of causes, and fatal perforation might occur without any symptoms suggesting its presence. Most cases of recovery from symptoms of perforation of the bowel in typhoid fever were those in which an attack of appendicitis was closely simulated, while the great majority of fatal cases were those in which other parts of the bowel than the appendix were perforated. It was probable that the appendix was oftener inflamed and perforated in typhoid fever than had hitherto been suspected.

The prognosis of apparent perforation of the bowel in typhoid fever was to be regarded as the more favorable the more closely the symptoms and their course resembled those of an appendicitis.

In the treatment of this affection early laparotomy was reported to have been tried in ten cases, but with only one successful result, while of twenty-seven patients with circumscribed peritonitis in typhoid fever largely attributed to intestinal perforation three recovered after incision, seventeen after resolution, and nine after the spontaneous discharge of pus. It was recommended that immediate laparotomy be employed for the relief of suspected intestinal perforation in typhoid fever only in milder cases of this disease. In all others evidence of a circumscribed peritonitis should be awaited and might be expected in the course of a few days. Surgical relief of this condition should then be urged as soon as the patient's strength would warrant.

The Relation of Drinking-water to Disease.—Dr. H. P. WALCOTT, of Cambridge, Mass., read a paper with this title. He thought it was surprising to know that some thinking people still attributed to drinking-water a secondary place in relation to disease. It had been shown by chemical analyses of various waters, during epidemics of disease and when such conditions were not prevailing, that the composition of the water was not materially changed, and that, as a rule, it was innocuous. It was believed, however, that chemical analysis had not discovered the poisonous substance, because it was well known that a number of diseases were due to microscopical bacteria that retained life in water, and still these bodies had not been found when surface drinking-water had been subjected to analysis. The author thought that it did not need a chemist to tell us that water exposed as the surface drinking-water that supplied some of the large cities was was polluted. Again, water might contain certain quantities of micro-organisms of disease which the sense of sight and taste would not protect against, showing the fallacy of supposing that if the water was palatable it was practically pure. The author said that the supply of water from the public works and their system of filtration, which had been shown to remove organic matter from previously polluted water, was the safest means of furnishing innocuous drinking-water to large communities. He furnished data as to the condition of the water supply in Massachusetts and its influence on disease, and said that it was well proved that disease followed a natural stream of water from which a city or community received its supply and where the sewage emptied into it. What the result would be if experiments were allowed to go on could not be doubtful; the experience of every community in the speaker's commonwealth had proved that it was only a question of time when natural filtration would cease to be operative, and the specific infections of disease would pass unchanged from the sick to the well. The lesson appeared to teach that a grossly contaminated water would not produce disease until it was specifically infected. A method for determining the safety of drinking-waters had been lately somewhat practiced in this country and had attracted much attention. It consisted in the injection into the abdominal cavity of the rat of a minute portion of the water to be tested, previously mixed with a sterilized bouillon and kept in a thermostat at the temperature of the body for twenty-four hours. If the animal survived the introduction of the fluid, the water was pronounced safe; if the animal died, the water was rejected. It was found that water polluted by excreta of typhoid-fever patients was fatal to the animal, as also were some waters known to be safely used by large communities but contaminated by *Bacterium coli commune*, and waters to which had been added cultures of the bacterium. This was a bacterium found in all our sewage-polluted streams and not proved to be the origin of disease in man. As the result of a very large number of analyses of ice, which was a substance used so largely now, it was found that it was frequently supplied from sources where the water was very polluted; and, as it was known that many forms of life were not destroyed by freezing, this left a fertile source of disease.

A Contribution to the Pathology of Pernicious Anæmia.—Dr. J. P. CROZIER GRIFFITHS and Dr. C. W. BURR, of Philadelphia, furnished an article on this subject. The paper was read by Dr. Griffiths. The authors, who had evidently instituted a series of experiments not only covering the ground gone over by previous investigators but also involving much original research, reported in effect as follows:

That in their experience there was in anæmia a deposition of iron in the liver unlike that observed in any other affection, the deduction being from this and certain other conditions found that pernicious anæmia was a form of hæmatolysis. It was therefore a non-cytogenic anæmia. Whether there existed any defect in the formation of the corpuscles predisposing to their destruction in the presence of suitable agents could not as yet be determined. The disease need not be a unity—in other words, there was no reason why but a single poison need cause the characteristic destruction of the blood. A condition closely resembling pernicious anæmia in pathological changes might be produced in animals by the administration of certain hæmatolytic agents, such as toluylenediamine. This artificial disease was, in fact, a pernicious anæmia. The same thing had been done in man, the number of red blood-cells having been reduced from four millions in a cubic millimetre to a little over half that number in three days. The cases of pernicious anæmia reported as being cured by the expulsion of tape-worm probably owed their symptoms to the absorption from the intestines of some poisonous product produced by the worm. Had the patients died, it was possible that an increase of iron in the liver would have been found, particularly as the poison absorbed would have been acting within the portal circulation. These two might have been called instances of pernicious anæmia in a wide sense.

Again, what seemed to be cases of pernicious anæmia due to atrophy of the gastric mucous membrane were probably the result of the absorption of some product of decomposition of food in the stomach, since dilatation of the stomach, with the consequent putrefactive changes, was a characteristic symptom of atrophy of the gastric mucous lining. The anæmia was certainly not one of inanition. Were we, then, to consider this disease as having no individual existence and look upon it merely as a condition symptomatic of different affections on the ground of its various causes? They thought not. The fact of the existence of tape-worm or gastrectasis, with consequent fermentation, or of other conditions, without the symptoms of pernicious anæmia, indicated that its peculiar complexity of symptoms was not a necessary sequence to their existence. Pernicious anæmia was rather to be looked upon as a distinct disease which arose whenever a certain poison was present and absorbed. When its symptoms were present together with the occurrence of tape-worm or of other diseases, it was to be regarded as a superadded and distinct affection. In like manner an apparent change of chlorosis into pernicious anæmia would be no proof of the relationship of the two. There was no reason whatever why there should not be ingrafted upon chlorosis or upon any other blood affection, or, in fact, upon any disease whatever, a new condition, a distinct disease which chanced to be a destruction of red blood-cells. This was very different from the view that pernicious anæmia was a final stage of any other form of anæmia.

Chlorosis the authors considered to be a distinct affection, in all probability of cytogenic origin, a fault in the proper formation of the red blood-cells as a result of which there was a deficiency in the amount of hæmoglobin present. As there was no evidence of destruction of blood in chlorosis, it might be concluded that it was a disturbance of hæmatogenesis.

Pernicious anæmia in the ordinary sense of the term must be regarded as a truly independent affection which might be defined as an extreme and increasing anæmia without marked loss of flesh, not directly secondary to any anatomical lesion or to the presence of any parasite, but probably due to the entrance into the portal circulation from the intestine of some hæmatolytic agent whose origin was unknown, but which was probably of the nature of a ptomaine.

Book Notices.

Diphtheria: Its Natural History and Prevention. Being the Milroy Lectures delivered before the Royal College of Physicians of London, 1891. By R. Thorne Thorne, M.B. Lond., F. R. C. P. Lond., F. R. S., Assistant Medical Officer to Her Majesty's Local Government Board, etc. London and New York: Macmillan & Co, 1891. Price, $2.

Mr. Thorne Thorne's work in public health questions is so well known to the sanitarians of this country that his name as the author of such a volume as this is alone sufficient evidence of the careful consideration that is accorded the subject of diphtheria. It is unnecessary to dilate upon the interest that this topic possesses for us; but a perusal of this work will forcibly suggest an unfavorable comparison between the methods with which many of our municipal and State boards of health investigate the origin of an epidemic of this and kindred infectious diseases and those employed by similar bodies in Great Britain.

From the facts cited in this volume we learn that during the past twenty years there has been a progressive increase in the rate of mortality from diphtheria in England and Wales, and that this increase is especially marked in urban populations. This is particularly noticeable because this increase is contemporary with a constant improvement in municipal water-supply, sewerage, and drainage and with a decrease in the death-rates from all causes, from the group of zymotic diseases, and from enteric fever.

The geological features of a locality seem to play no part in the causation of the disease, but the dampness of the place, as indicated by the height of the ground water, seems to foster and to enhance the mortality from it.

Season has a decided influence, both upon the manifestation of diphtheria and upon the mortality from it. Beginning in September, the highest point is reached during October and November, and there is a gradual decrease during December and January, the smallest mortality occurring during May, June, and July.

The greatest number of cases occurs between the ages of three and twelve years, and there is a slightly greater mortality among females than among males.

The author attaches great weight to a prevalence of ill-defined throat illness before, during, and after an increase in the number of cases of diphtheria, and believes that in many of these cases there is a "progressive development of the property of infectiveness, culminating in a definite specific type which is indistinguishable from true diphtheria."

Much evidence is adduced to show that diphtheria has often been conveyed through the medium of milk; and the fact that cows, as well as cats, can be inoculated with the *Bacillus diphtheriæ* gives strong ground for believing that the infectivity of milk is due to some disease of the cow. Accordingly, the author urges that raw milk should never be used, but that it should always be raised to a temperature of 155° F. and kept at that heat for at least six minutes.

There is one other point to which the author refers that may well be considered, and that is that teachers often receive convalescents into school at too early a date, and do not exclude children of the same family presenting incipient symptoms of illness, because the financial condition of the school or the teacher's salary is dependent upon the average attendance. This is an evil that has been referred to in this country, and it seems that it would be to the interest of school boards and of health boards to agree upon some definite plan that would not work injustice to either pupil or teacher.

BOOKS, ETC., RECEIVED.

The Comparative Anatomy of the Domesticated Animals. By A. Chauveau, M. D., LL. D., Member of the Institute (Academy of Sciences); Inspector-General of Veterinary Schools in France, etc. Revised and enlarged with the co-operation of S. Arloing, Director of the Lyons Veterinary School, etc. Second English Edition, translated and edited by George Fleming, C. B., LL. D., F. R. C. V. S., Late Principal Veterinary Surgeon of the British Army, etc. With Five Hundred and Eighty-five Illustrations. New York: D. Appleton & Co., 1891. Pp. xxxvi–1084. Price, $7.

Epidemic Influenza: Notes on its Origin and Method of Spread. By Richard Sisley, M. D., Member of the Royal College of Physicians of London. London: Longmans, Green, & Co., 1891. Pp. viii–150.

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Mechanical Massage. By B. D. Eastman, M. D. (Read before the Association of Superintendents of Institutions for the Insane, Washington, April 30, 1891.)

Report of One Hundred and Sixty-three Cases treated with the Pneumatic Cabinet. By Albert Abrams, M. D., San Francisco. [Reprinted from the *Pacific Medical Journal.*]

The Prevention of Morphinism. A Therapeutic Revolution: Codeine and Narceine vice Morphine. By J. B. Mattison, M. D. [Reprinted from the *Dietetic Gazette.*]

Chloralism. By J. B. Mattison, M. D. [Reprinted from *Notes on New Remedies.*]

The Post-partum Douche. By Edward Pynchon, M. D. [Reprinted from the *North American Practitioner.*]

Note on the Virile Reflex. By C. H. Hughes, M. D. [Reprinted from the *Alienist and Neurologist.*]

Psychical or Physical. An Inquiry into the Mind and Matter Problem. By C. H. Hughes, M. D. [Reprinted from the *Alienist and Neurologist.*]

The Supposed Curative Effect of Operations per se. By J. William White, M. D., of Philadelphia. [Reprinted from the *Annals of Surgery.*]

The Dangers of delaying Intubation. By Bernard Gordon, M. D. [Reprinted from the *Post-graduate.*]

Original Investigation on the Heating and Ventilation of School Buildings. By R. Harvey Reed, M. D., Mansfield, Ohio. [Reprinted from the *Journal of the American Medical Association.*]

Relation of Concussion of the Brain and Spinal Cord to Inflammatory and Other Morbid Conditions of these Organs. By B. A. Watson, M. D., Jersey City, N. J. [Reprinted from the *Journal of the American Medical Association.*]

A Case of Loose Body in the Knee Joint, with Description of Theories of Origin, Pathology, Symptoms, and Treatment of Loose Bodies in Joints. By M. S. Kakeles, M. D. [Reprinted from the *Medical Record.*]

Clinical Comments on Cutaneous Cases. By Charles W. Allen, M. D. [Reprinted from the *Brooklyn Medical Journal.*]

The Treatment of Erysipelas. A Personal Experience in Fifty Cases. By Charles W. Allen, M. D. [Reprinted from the *American Journal of the Medical Sciences.*]

Pemphigus Circinatus. By Charles W. Allen, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

A Plea for the Extraperitoneal Treatment of the Stump in Abdominal Hysterectomy for Fibroids. By A. Lapthorn Smith, B. A., M. D., Montreal. [Reprinted from the *Canada Lancet.*]

On the Comparative Osteology of the United States Columbinæ. By R. W. Shufeldt, C. M. Z. S. [Reprinted from the *Proceedings of the Zoological Society of London.*]

My Personal Experience with Vaginal Hysterectomy. By Florian Krug, M. D. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children.*]

Inflammations of the Right Iliac Fossa and their Surgical Treatment. By W. B. Van Lennep, A. M., M. D., Philadelphia. [Reprinted from the *Hahnemannian Monthly.*]

Nitrogen Monoxide and Oxygen for Anæsthesia in Minor Surgical Operations. With a Report of Fifty Cases. By William Waldo Van Arsdale, M. D. [Reprinted from the *American Journal of the Medical Sciences.*]

Notes of the Effect of the Aniline Dyes, especially the Blue Pyoctanin, in the Treatment of Inoperable Malignant Growths. By Willy Meyer, M. D. [Reprinted from the *Medical Record.*]

The Dangers of Leaving the Products of Inflammation in the Female Pelvis. By Charles P. Noble, M. D. [Reprinted from the *Annals of Gynæcology and Pædiatry.*]

Perineorrhaphy. A Plea for Immediate Repair. With the Description of a New Method of Suturing. By Clement Cleveland, M. D. [Reprinted from the *Medical Record.*]

The Statistics and Lessons of Fifteen Hundred Cases of Refraction. By George M. Gould, M. D., Philadelphia. [Reprinted from the *Journal of the American Medical Association.*]

On Dermatol, a Proposed Substitute for Iodoform—its Use in Surgical Practice. By Charles A. Powers, M. D. [Reprinted from the *Medical Record.*]

A Case of Anterior Poliomyelitis and Multiple Neuritis. By W. R. Gowers, M. D. [Reprinted from the *Clinical Society's Transactions.*]

Third Annual Report of the New Amsterdam Eye and Ear Hospital.

Accidents, Anomalies, and Unrecognized Matters in Abdominal Surgery. By Fred Byron Robinson, B. S., M. D., Chicago. [Reprinted from the *North American Practitioner.*]

Circular Enterorrhaphy by a New Method. By F. B. Robinson, M. D. [Reprinted from the *Annals of Surgery.*]

Miscellany.

The New York State Medical Examination.—At the first examination under the new law, which was held on the 10th, 11th, 12th, and 13th inst., the questions were as follows:

Chemistry.—1. What element composes over half the matter of the earth? 2. What is oxidation? 3. What is ozone? 4. Mention a test for sugar other than Trommer's. 5. What is Fehling's solution? 6. Describe the mode of testing for albumin in urine. 7. Name the chemical constituents of biliary calculi. 8. Upon what do the bleaching and disinfecting properties of chlorine depend? 9. Define an acid, a base, and a salt. 10. Write the formula for sulphuric acid. 11. What is Paris green? 12. What is the chemical name of Rochelle salts? 13. Give the formula for mercuric chloride (corrosive sublimate) and [the formula for] mercurous chloride (calomel). 14. What is the chemical designation of the ordinary alcohol of commerce? 15. From what substances is ether obtained?

Anatomy.—1. Give a brief anatomical description of the humerus. 2. Describe the osseous structure of the thorax and the number and general characteristics of the ribs. 3. Describe a lumbar vertebra. 4. Describe the difference between an artery and a vein. 5. Describe the three coverings of the brain and name the principal sinuses. 6. Locate and describe the urinary bladder. 7. Describe and locate the ileocæcal valve. 8. Give the number of the temporary or milk teeth and also the number of permanent teeth. 9. What are the origin and course of the pulmonary artery? 10. Give the names of the principal muscles of the back. 11. Give the order from within outward of artery, vein, and nerve in Scarpa's space. 12. Describe the thoracic duct. 13. Give the gross anatomy of the liver. 14. Locate and describe the kidneys and suprarenal bodies. 15. Locate and describe the rectum.

Physiology and Hygiene.—1. How does the digested food enter the circulation of the blood? 2. What conditions within normal limits will modify the quantity of urea in the urine? 3. Give the mechanism of nerve-reflex and an example of its action. 4. Describe the functions of the liver. 5. How does respiration affect the blood? 6. Name the several digestive ferments and give the action of each. 7. Name the physical properties of pure water. 8. What are the objects of cooking food? 9. Into what general classes are foods divided? Give examples of each class. 10. How does the air of crowded rooms become foul? 11. How much space is required for a single individual in a sleeping apartment to insure health? 12. What deformities are liable to result from improperly constructed desks and seats in school-rooms? 13. Name the principal means for preventing the spread of contagious diseases. 14. Name three tests for detecting impurities in water. 15. What is the best sanitary plan for the disposal of sewage?

Obstetrics.—1. Describe the development of the fertilized ovum in its early stages. 2. What is to be learned by abdominal auscultation in pregnancy? 3. What changes occur in the uterus during pregnancy? 4. How is prolapse of the funis recognized and treated? 5. What is meant by inertia of the uterus during labor? How does it complicate labor and how should it be treated? 6. What signs would indicate death of the fœtus prior to labor and what should be done in such a condition? 7. What are the certain signs of pregnancy? 8. How is the perinæum endangered in labor? 9. Give the diagnosis and management of a face presentation. 10. Describe the methods of removing the placenta, and tell when they are appropriate. 11. What are the causes of hæmorrhage after labor, and what is the treatment? 12. What care does the mother require after labor? 13. Give the causes, symptoms, and treatment of asphyxia of the new-born. 14. Give the causes, symptoms, and treatment of mammary abscess in the puerperal state. 15. Describe the common varieties of the obstetric forceps and their application.

Surgery.—1. Name the different methods by which wounds heal, and describe each. 2. What is a tumor? 3. Give the treatment of fracture of the clavicle. 4. What are the symptoms of strangulated inguinal hernia? 5. What tissues are divided in the operation for femoral hernia? 6. What are the causes of atony of the bladder? 7. Give the general treatment for the arrest of hæmorrhage. 8. How and in what part of the inferior maxillary bone is fracture most liable to occur, and what is the treatment? 9. How is a fracture produced? 10. What is a dislocation? 11. What is the treatment of simple penetrating wounds of the abdomen? 12. What is the treatment of asphyxia? 13. Where are the swelling and fluctuation most prominent in synovitis of the ankle joint? 14. What is the pathology of "white swelling"? 15. Give a description and state the characteristic symptoms of scirrhus of the mamma.

Pathology and Diagnosis.—1. Describe the eruption of typhoid fever. 2. What is endemic disease? 3. Give the symptoms of epidemic influenza. 4. What is hæmoptysis? 5. What are the normal sounds heard in inspiration and expiration? 6. Give the physical signs of pleuritic effusion. 7. What is hypertrophy? 8. What are crepitant râles? 8. How would you diagnosticate a case of diphtheria? 10. What is the normal relation of the pulse to respiration? 11. State briefly the rational and physical signs of acute bronchitis. 12. Give the clinical history of an acute attack of croupous pneumonia. 13. Describe the natural heart sounds. 14. On what day does the rash usually appear in scarlatina? 15. Give the pathology of carcinoma.

Therapeutics, Practice, and Materia Medica.—*A. Questions prepared by the Board of Examiners representing the Medical Society of the State of New York:* 1. What are the therapeutic uses of ergot of rye? 2. What are the therapeutic uses of digitalis? 3. Explain the therapeutic uses of opium in dysentery. 4. What are the indications for the therapeutic uses of nux vomica or strychnine? 5. What are the therapeutic uses of potassium iodide? 6. State your treatment, including diet, of typhoid fever. 7. Describe the treatment of diabetes mellitus. 8. Give the symptoms and treatment of tetanus. 9. What is the appropriate treatment of epilepsy during a convulsive attack? 10. Give the treatment of acute croupous pneumonia. 11. Describe ergot of rye, its physiological action, and give the dose of the fluid extract. 12. Name three official preparations of digitalis, and give the dose of each. 13. Name an important alkaloid of erythroxylon and describe the purposes of its application and its effect. 14. Write a prescription containing morphine for hypodermic purposes, and state the amount to be used for an adult at each injection for the purpose of allaying local pain. 15. Give the difference between a laxative, a saline purgative, a drastic purgative, a hydragogue purgative, and a cholagogue purgative, and name examples of each.

B. Questions prepared by the Board of Medical Examiners representing the Homœopathic Medical Society of the State of New York:

1. Name five remedies frequently indicated in eczematous eruptions, and state for what form of the disease each is applicable. 2. Name two prominent remedies, with indications for their use in cystitis. 3. Give the indications of aconite, gelsemium, and baptisia in febrile conditions. 4. Name four of the chief remedies in typhoid fever, giving indications for their use. 5. Name four principal remedies for hæmorrhage, and give at least one characteristic indication for each. 6. What is the prognosis of diabetes mellitus and what its treatment? 7. Under what conditions would you give a grave prognosis in scarlatina? 8. State your treatment, including diet, of a severe case of diphtheria, also name four remedies and give their chief symptoms. 9. What is the proper treatment of pleurisy with exudation? 10. What are the causes of death in Bright's disease? 11. How does a homœopathic mother tincture differ from a fluid extract? Explain in a general way the preparation of homœopathic tinctures. 12. What are the chief preparations of opium? What doses produce the physiological effects of the drug and what doses are poisonous? 13. When giving digitalis in large doses, what should be its limitations and what are the dangers of its excessive use? 14. Differentiate between the pathogenetic effects of bryonia and cimicifuga. 15. Compare bryonia and phosphorus in chest disease.

C. Questions prepared by the Board of Medical Examiners representing the Eclectic Medical Society of the State of New York:

1. What are the therapeutical uses of nux vomica and strychnine? 2. Under what circumstances would you prescribe aconite, belladonna, bryonia, and gelsemium? 3. What remedies dissolve the membrane of diphtheria? 4. Name three of the most reliable remedies for pulmonary hæmorrhage. 5. State the difference between a stimulant and a tonic. 6. What is the most frequent cause of valvular lesion of the heart? 7. Give the differential diagnosis between Bright's disease of the kidneys and diabetes. 8. What is the test for deciding between sunstroke and apoplexy? 9. What symptom is conclusive evidence of pneumonia? 10. What are the symptoms and treatment of poisoning by strychnine? 11. Name the properties and dose of gelsemium, aconite, and belladonna. 12. Name the properties and dose of veratrum viride, digitalis, and nux vomica. 13. What are the preparations of opium and its alkaloids? 14. Name the most prominent heart stimulants? 15. What are the medicinal uses of ergot and of lobelia inflata?

In the examination in therapeutics, practice, and materia medica, the first five questions were under the head of therapeutics, the second five under that of practice, and the third five under that of materia medica. Each candidate was required to answer ten of the fifteen questions, and was not allowed to "cancel" more than two in each group.

Spermatocystitis.—In an article published in the *Lancet* for October 31st, Mr. Jordan Lloyd, of Birmingham, remarks upon the frequency of inflammation of the seminal vesicles, which, he says, generally goes unrecognized as diseases of the Falloppian tubes escaped recognition in the great majority of cases until within a few years past. Mr. Lloyd then proceeds as follows:

Before discussing the subject proper of this paper, I desire to refer for a few moments to one or two points in the anatomy of the male generative apparatus. On the floor of the prostatic urethra is a little hollow, the utriculus or sinus pocularis, in the sides of which the common ejaculatory ducts are said to open. I find very frequently that the ducts from either side end by a single opening at the bottom of the sinus. From its opening into the urethra the common ejaculatory duct runs backward through the substance of the prostate for about three quarters of an inch, and ends by dividing into the duct going to the seminal vesicle (which is very short—say half an inch) and the duct going to the epididymis, the vas deferens, which is sixteen or eighteen inches long at least. There is a great difference, therefore, in the distances between the urethra and the interior of the seminal vesicle on the one hand, and the urethra and the epididymis on the other. The seminal vesicles in the adult are made up of wide, convoluted, sacculated, blind-ended tubes, lined with finely reticulated mucous membrane, and bound together with connective tissue into a structure bluntly pyramidal in shape, about two inches and a half long, one inch broad, and three quarters of an inch thick. They lie at the sides of the base of the bladder between it and the rectum, close to the angle formed by the bladder and the pelvic wall. The front of the vesicles are immediately behind the prostate, and the whole structures, when moderately distended, can be easily and distinctly felt from the rectum, and become more evident when the bladder contains a few ounces of urine. The vesicles are held closely to the bladder by a strong layer of recto-vesical fascia, which blends in front with the capsule of the prostate, and is continuous behind with the fascia on the back of the bladder; they are therefore in much closer relationship with the bladder than with the rectum. In palpating these structures from the rectum, it is important to bear in mind that they are to be felt toward the sides of the pelvis, and not in the middle line. Their blood-vessels are branches of the inferior vesical and middle hæmorrhoidal arteries, and their nerves are supplied from the hypogastric plexus of the sympathetic.

Spermatocystitis is rarely seen as a primary malady; it is almost always secondary to urethritis. Whether we regard this inflammation as gonorrhœal or not depends upon our individual views on the specificity of the urethral discharges which follow sexual intercourse. The bulk of the profession look upon them as gonorrhœal, but that they are all gonorrhœal in the strict sense of the word, that they contain the specific gonococcus, I very much question. The majority of discharges which come under my own notice—and I see a very large number—are certainly not specific in the sense that we use the word "specific" in cases of syphilis or small-pox. But whatever our views on the nature of venereal urethritis, we shall all agree that this inflammation begins at the meatus and passes down the urethra for a variable distance, sometimes not more than a few lines, sometimes to the kidney pelvis itself, and that it frequently travels from the urinary tract along the seminal passages to the epididymis, and that epididymitis therefore is one of its most common complications. All practitioners recognize "gonorrhœal epididymitis," but how often have they heard of "gonorrhœal spermatocystitis"? I venture to think that 999 out of 1,000 medical men have never thought of such a malady at all, although I believe it to be as common as, indeed more so probably than, gonorrhœal epididymitis. Its symptoms are attributed to other maladies altogether; they are looked upon as indicating the presence of prostatitis—acute, subacute, or chronic—vesical irritability, inflammation of the neck of the bladder, or reflex spasms from an inflamed urethra. I question the existence at all of many of these maladies, and believe firmly that inflammation in and around the spermatic vesicles is the usual explanation of their various phenomena. It appears to me that an inflammation which has started down the common ejaculatory canal is much more likely to extend along the half-inch duct into the spermatic vesicles than along the sixteen-inch passage to the epididymis, and that it does do so any one can determine for himself if he will examine *per rectum* all gonorrhœal patients who complain of increased frequency of micturition.

The similarities which exist between spermatocystitis and epididymitis are extremely interesting, and are well worth a few moments' attention. In the first place, they are rarely primary, but are almost always secondary to urethral inflammation. They occur in the third or fourth week of a gonorrhœa. The inflammatory process in both affects chiefly the connective tissue lying between the tubular structures, and is characterized by a considerable amount of hard, brawny swelling, giving rise to the well-known ovoidal mass filling one half of the scrotum in the one case, and to the diffused brawny swelling felt from the anterior wall of the rectum—mistaken for the acutely inflamed prostate—in the other. In epididymitis it is now well known that it is not the testicle which swells, but the epididymal connective tissue; and in spermatocystitis it will be found, if a careful examination is made, that it is not the prostate which is swollen, but the vesicular or perivesicular tissue beyond. Suppuration in both cases is the exception, and resolution the rule. How often do we see a gonorrhœal epididymitis suppurate, despite the fact that the initial lesion from which the inflammation originated is itself suppurative? Spermatocystitis terminates in resolution, but occasionally it may suppurate and give rise to deep-seated abscess in the pelvic floor. These abscesses may open or be opened into the rectum, the perinæum, the urethra, or the bladder, and cases have been recorded where pus had made its way from the vesicle into the peritoneal cavity at Douglas's pouch and proved fatal. The analogies also between spermatocystitis and salpingitis are so remarkable and so many that they could only be discussed in a paper especially devoted to their consideration.

Spermatocystitis is met with in three forms—acute, subacute, and chronic. The first usually complicates the true gonorrhœa, the second occurs in the "non-specific" variety of urethritis, and the third is a sequel of either of the other two. With regard to the pathology of spermatocystitis, I am sorry to say that my observations are not in any way complete, for the reason that it is a disease which does not kill, and which is met with therefore on the post-mortem table only by accident. I have examined large numbers of seminal vesicles after death, and have found great differences in their structure, size, shape, and attachments, not only in different bodies, but in the companion vesicles of the same individual. In a paper read before the Glasgow meeting of the British Medical Association, and published in the *British Medical Journal* of April 20, 1889, I gave a *résumé* of my researches in the literature of the subject, and the facts therein detailed, added to what I have personally seen, convince me that inflammatory disease of this organ is a reality and is of frequent occurrence.

The symptoms of spermatocystitis are identical with those given in the text-books as characteristic of the several varieties of prostatitis, of vesical irritability, and inflammation of the neck of the bladder, and a correct diagnosis between them can only be made by a carefully conducted digital examination from the rectum. I believe inflammation of the prostate to be a disease of comparative rarity, and am convinced that in the majority of cases where prostatitis is thought to complicate a urethritis it is the seminal vesicles which are the seat of the inflammation, and not the prostate at all. I can not discover any *a priori* reason why the prostatic tissue should inflame any more than the corpus spongiosum or the bladder wall during the course of a urethritis, but I can understand why an inflammation which so frequently extends from the urethra along the common ejaculatory duct to the vas and epididymis should find its way also to the seminal vesicle.

Acute spermatocystitis occurs usually during the second or third week of a gonorrhœa. A patient complains of uneasiness, soon amounting to pain of a throbbing character, deep in the pelvis and perinæum, with increased frequency of micturition going on to vesical tenesmus. The painful symptoms increase as the bladder distends, and are felt most acutely at the end of the penis at the close of the act of micturition, after which a brief period of relief may follow. Defecation is frequently painful; the urethral discharge is lessened, and may disappear entirely. The urine remains acid and very slightly altered in character. It may contain a few pus- or blood-corpuscles, and throw down a slight mucous deposit, differing in this respect from the urine in acute gonorrhœa of the bladder. The most important sign of all, however, is the swelling to be felt from the rectum. This swelling will be found to occupy the whole base of the bladder from side to side, and to extend beyond the reach of the finger; and I can not conceive it possible that the prostate, shut up as it is in its own fibrous capsule, can swell up to this great size in the course of a few hours. We should remember that in gonorrhœal orchitis it is the inflamed connective tissue of the epididymis which constitutes the scrotal swelling, and not the testicle itself.

The subacute variety presents similar symptoms, but of a less severe type. It is most commonly seen later in the course of a urethritis, which is not, strictly speaking, gonorrhœal. Frequent erections and seminal emissions are occasionally present.

The chronic variety gives rise to symptoms which are very variable and often extremely perplexing. Among these may be mentioned intractable gleet, not depending on stricture, which gets better and returns over and over again; recurrent attacks of simple vesical irritability; seminal emissions which may be rusty in color or slightly purulent. Rectal examination reveals a distended or hardened vesicle, which is as easily differentiated from the normal prostate as is the nodule which may be felt behind the testicle in chronic epididymitis. I have aspirated vesicular swellings on several occasions, and have demonstrated their nature by finding spermatozoa in the fluid withdrawn. Prognosis in all varieties is, as a rule, favorable. The acute and subacute varieties usually end in resolution, and when suppuration occurs a timely incision is followed by complete cure. The chronic variety sometimes exists for months, but usually gets well in the end; occasionally, however, it gives rise to symptoms during many years.

Speaking generally, the treatment of spermatocystitis is the same as that of prostatitis. The acute kind must be dealt with by rest in bed, milk diet, and a dozen leeches to the perinæum; warm fomentations; belladonna or morphine suppositories; careful avoidance of constipation, motions being kept soft with sulphur in some form; and catheterization with a Jaques rubber instrument if retention supervenes. Suppuration must be closely watched for by regular rectal examination, and when present must be treated by an incision from the perinæum guided by the finger in the bowel. The practice of opening deep collections of pus about the rectum or prostate by incisions made from the bowel is not to be commended; such abscesses are much better incised through the skin. An external wound is not only more easily got at, but it affords an opportunity of thoroughly exploring with a finger the cavity from which the pus is evacuated. In the article above referred to I give a short note of a case where I opened suppurations in both seminal vesicles at an interval of a few days. When an abscess has already made its way into the bladder, rectum, or ischio-rectal fossa, free external drainage is the indication to follow. I believe that the majority of deep abscesses consecutive to urethritis are not prostatic, as is generally asserted, but are of vesicular origin. This may explain the fact mentioned by von Zeissl—the most modern writer on the subject—that he has "never seen infiltration of urine and fistulæ follow prostatitis." Sir Henry Thompson, in writing of prostatic abscess, says: "Abscesses *supposed* to be prostatic are not infrequently external to the prostate, and not within the envelope of the organ; and are, in fact, periprostatic. They arise much in the same manner as prostatic abscess, but are of less serious import." Our leading English authority on diseases of the genito-urinary system seems entirely to have overlooked spermatocystitis as a complication of urethritis, or I fancy it would have struck him that the abscesses to which he alludes above were probably due to vesicular disease. The chronic variety is the most unsatisfactory of all kinds to treat, chiefly for the reason that the symptoms to which it gives rise are, as a rule, not sufficiently serious to justify surgical interference. If the suffering of the patient demand it, it is easy to aspirate a distended vesicle from the perinæum, the needle being guided by a finger in the rectum. It is much easier, but not quite so free from the risk of inflammation, to aspirate from the rectum. When aspiration has failed, free incision, or even excision of the vesicles, may be performed through a perineal opening. Gleet is a common consequence of chronic spermatocystitis, especially that variety of gleet which is brought on by beer-drinking. Our leading writers make no mention of this. Otis sees in every gleet a stricture which wants dividing, and Berkeley Hill discovers granular patches in the urethra by means of the urethroscope which call for topical applications. The gleet of vesicular disease will neither yield to the urethrotome nor the caustic stick, but may be benefited by a mild course of mercury, by a careful attention to the general health, and by an abstinence from vinous and sexual indulgence.

I have purposely abstained in this paper from detailing cases which have come under my care. I have notes of plenty of them which I could adduce in support of my statements. I am more strongly convinced than ever of the importance of the subject upon which I have so lightly touched. There are many interesting facts relating to it to which I should like to call attention did time allow. For the sake of eliciting discussion, I beg to submit the following conclusions: (1) That spermatocystitis, although seldom recognized, is not uncommon; (2) that it is in many ways analogous to salpingitis in women; (3) that it is usually secondary to urethritis; (4) that suppuration is exceptional; (5) that when suppuration occurs, the pus should be liberated by incisions made from the perinæum; (6) that it frequently accompanies epididymitis; (7) that it is usually diagnosticated as inflammation of the prostate or neck of the bladder; (8) that the diagnosis can be easily made by careful digital examination from the rectum.

The New York Academy of Medicine.—On Thursday evening, the 19th inst., the anniversary discourse, on Arsenic in Common Life, was delivered by Professor Charles F. Chandler, of Columbia College.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 25th inst., Dr. J. Blake White will show a double nasal spray and vaporizer, and Dr. W. F. Chappel will read a paper entitled Œsophageal Stricture treated by Permanent Tubage.

The Nomenclature of Fœtal Positions.—Dr. D. Berry Hart, of Edinburgh, read a paper on The Inconsistencies of the Present Obstetric Nomenclature for Positions before the Obstetrical Society of Edinburgh on the 13th of May, and it is published in the November number of the *Edinburgh Medical Journal.* He says:

For the various positions the child may occupy at the beginning of labor we have at present a nomenclature pretty generally agreed upon. This nomenclature has grown up gradually, and has been specially discussed by the committee whose formation was suggested by Professor Russell Simpson at the London International Congress.

In naming the head positions, the occiput is taken as the factor, and therefore L. O. A. means that "position" where the occiput is to the left and front.

In face cases, however, the chin is regarded as the guide, and thus we speak of L. M. A.—*i.e.*, the face position with the chin to the left and front.

In breech presentations, again, the positions are taken from the sacrum, and thus we have L. S. A., meaning that position where the sacrum is to the left and front.

In transverse presentations, finally, the nomenclature has varied much. The most common position has been variously termed dorso-anterior, left cephalo-iliac, or left scapulo-anterior, etc.

Now, in this nomenclature there is no consistency, although there may be convenience provided one does not go to the root of the matter. To understand the present errors and the way out of them we must recur to the definition of what is termed "position."

"Position" involves two factors—*i. e.*, we must define the relation of a certain part of the child to a certain region of the mother. The latter factor is easily determined, as it is the upper strait of the bony pelvis. In this we take either the ilio-pectineal eminences or sacro-liac joints, according as the position is anterior or posterior; or where the Solayres's obliquity is not present (the presenting part lying in the transverse) we take the iliac bone itself where the transverse diameter impinges, and use the word "iliac" instead of "ilio-pectineal." To divide the brim into quadrants, as Dr. Milne Murray suggests, is met by the difficulty of the occasional absence of Solayres's obliquity—when the occiput, for instance, would occupy two quadrants.

Besides, the real difficulty in defining "position" is the fœtal factor. In the ordinary nomenclature it is "occiput" in head cases, "chin" in face cases, "sacrum" in breech cases, and "acromion" in transverse ones. Now, head, chin, sacrum, and breech can have no topographical unity. They are so diverse that one is bound to try to define the fœtal factor of position in some other way.

I strongly urge a functional definition, and think the best is the one I have already given—viz.: "*Position is the relation to the upper strait of the pelvis of that portion of the presenting part of the fœtus which should first rotate to the front in the movement of internal rotation.*"

This is really no new principle, as evidently in face cases the chin has been chosen as the fœtal indicator of position, and apparently because it is of importance that it should rotate to the front in internal rotation.

We can now rearrange the nomenclature as follows:

Head and face cases retain their nomenclature. In breech we take the hip, and have, therefore—

Dorso-anterior	Left coxo-cotyloid.
" "	Right " "
Dorso-posterior	Left " "
" "	Right " "

For transverse cases we have—

Dorso-anterior	Left acromio-iliac.
" "	Right " "
Dorso-posterior	Left " "
" "	Right " "

It must be noted that "right" and "left" "anterior" and "posterior" refer only to the mother.

This nomenclature is accurate, logical, simple, and it tells the student, moreover, a great fact about internal rotation. The old nomenclature was inaccurate, had no logical consistence, and should, of course, be altered.

I am not bigoted in regard to this matter. It might, for instance, be possible to define position as "the relation of the dorsal aspect of the presenting part to the upper strait of the pelvis." This would, however, involve the alteration of the nomenclature in face cases to "left fronto-anterior," etc., and would be an unfortunate necessity, but much better than adhering to a nomenclature that is contradictory and confusing.

His Pneumogastric Nerve.—The following verses, by Eugene Field, appeared in the *Chicago Daily News:*

Upon an average, twice a week,
When anguish clouds my brow,
My good physician friend I seek
To know "what ails me now."
He taps me on the back and chest
And scans my tongue for bile,
And lays an ear against my breast
And listens there a while.
Then he is ready to admit
That all he can observe
Is something wrong inside, to wit:
My pneumogastric nerve!

Now, when these Latin names within
Dyspeptic hulks like mine
Go wrong, a fellow should begin
To draw what's called the line.
It seems, however, that this same,
Which in my hulk abounds,
Is not, despite its awful name,
So fatal as it sounds.
Yet, of all torments known to me,
I'll say without reserve,
There is no torment like to thee,
Thou pneumogastric nerve!

This subtle, envious nerve appears
To be a patient foe—
It waited nearly forty years
Its chance to lay me low;
Then, like some blithering blast of hell,
It struck this guileless bard,
And in that evil hour I fell
Prodigious far and hard.
Alas! what things I dearly love—
Pies, puddings, and preserves—
Are sure to rouse the vengeance of
All pneumogastric nerves!

Oh, that I could remodel man!
I'd end these cruel pains
By hitting on a different plan
From that which now obtains.
The stomach, greatly amplified,
Anon should occupy
The all of that domain inside
Where heart and lungs now lie.
But, first of all, I should depose
That diabolic curve
And author of my thousand woes,
The pneumogastric nerve!

Membership in the American Pharmaceutical Association is obtained only by election at the annual meeting. "Every pharmacist and druggist of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, and those teachers of pharmacy, chemistry, and botany who may be especially interested in pharmacy and materia medica" are eligible for membership. For blank application and further information, address Dr. H. M. Whelpley, 2729 Washington Avenue, St. Louis, chairman of the committee on membership.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, NOVEMBER 28, 1891.

Original Communications.

DISEASES OF THE URINARY APPARATUS.*

PART I.—PHLEGMASIC AFFECTIONS.

By JOHN W. S. GOULEY, M. D.,
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SECTION I.—GENERAL CONSIDERATIONS.

I.

INTRODUCTION. — FREQUENCY OF DISEASES OF THE URINARY APPARATUS.—SKETCH OF THE COMPOSITION INNERVATION, NUTRITION, AND FUNCTION OF THE URINARY APPARATUS.

THE present knowledge of affections of the urinary and genital apparatus, and of means for their relief, is the accretion of the experiences of many thousand years. All nations and generations have contributed their quota in the slow but steady advances that have been made. It requires no great stretch of the imagination to picture a young savage, far back in the mists of time, harassed by frequent and difficult urination owing to a narrow stenosis of the preputial orifice, conceiving the idea of sharpening a stone and with it excising the end of the prepuce, and thus removing the annoying obstruction. This prompt relief inducing him to try the experiment upon others, he becomes the posthectomist of his tribe. An aged savage, too, may be pictured in the throes of retention of urine searching means of relief, and finding a smooth, hollow reed, rounds its extremity, spits upon it, performs rectilinear catheterism, and relieves his distended bladder. He then exhibits with joy the improvised instrument that has saved him, and perhaps also an improvement thereon, and his elderly neighbors, similarly affected, take advantage of the discovery.

The following statement is made to show that autocatheterism with a reed is not purely imaginary, but has been successfully practiced for the relief of retention of urine: A Tasmanian, under the care of the writer for urethral stricture, said that while in his country far away "in the bush" he was seized with retention of urine, and suffered so much in consequence that he looked for and found a reed of suitable size, which, after a little rude preparation, he moistened with saliva and introduced into his urethra, and thus relieved his distended bladder. The writer is in possession of two small straight rods made of bamboo, smoothed, rounded, and charred at both extremities. These rudely improvised instruments had been used for several months by another patient, a rustic, almost a savage, for the relief of frequent attacks of retention of urine due to urethral stricture. He said that he had prepared them himself, and that whenever unable to urinate he introduced the smaller and then sometimes the larger, immediately on whose withdrawal the urine flowed freely.

The operation of posthectomy appears to have been commonly practiced by several ancient Eastern nations, notably the Egyptians, who were in the habit of performing the operation for the cure as well as the prevention of disease thousands of years ago.

Another operation, orchidectomy, whose invention is ascribed to Semiramis, the Assyrian queen, may be traced to savage life, and even the savages may have learned it from the lower animals, for there are not few of the smaller polygamous beasts that destroy the testicles of the superfluous young males. So it would seem that eunuchism is not confined to man. Many therapic devices, too well known to require present commentary, have been learned from the lower animals.

It is recorded that the cannibal Caribs discovered by Columbus were in the habit of emasculating their young prisoners to be fattened and then devoured.

Lumbar incision to let out pus from nephric or perinephric abscess dates back more than two thousand years.

The time when was introduced the cutting open of the bladder for the extraction of a stone is unknown. That it was habitually performed during the life of Hippocrates is evidenced in a clause of the oath which this great master caused his disciples to take, forbidding them to practice the operation, and relegating it to specialists.

Lithoclastic cystotomy is attributed to Ammonius, of Alexandria, who lived two hundred and seventy-six years before the Christian era and was surnamed Lithotomos, stone-cutter, from which arose the term lithotomy, now having the arbitrary signification of cutting for the stone.

Celsus first described the manner of using catheters for the relief of retention of urine, and the general directions he gave are followed to this day. Of late years bronze catheters have been unearthed from the ruins of Pompeii. This discovery, together with the account of them given by Celsus, shows that these instruments were in common use before the Christian era.

It was Celsus, too, who gave the first description of lithotomy as performed before and during his time, and the operation has ever since borne his name—the Celsian method.

The greatest advances made in andrology are due to the endeavors to improve lithotomy, and later to discover other means of relieving sufferers from calculous affections. These improvements were begun in Italy, but the names of those surgeons who made them have long since been forgotten, and no writing has been found anterior to Mariano Santo (1525), who seems to have been the mouthpiece of his master, Giovanni di Romani. The method described is known as the Marian. The proprietary operation then passed into the hands of the Colots of France, remained a family secret for more than a century, and was not divulged until a surgeon, concealed in an upper room, surprised them in the act of operating, by looking through a hole in the floor. Franco had, however, already (1561) devised and published two methods of his own, one of which was the suprapubic.

From the time of the Colots lithotomy became a common operation in Europe; it became still more common on the advent of Frère Jacques, who is said to have operated more than five thousand times. The frequent use of the sound in searching for vesical stones led to the better study of urethral obstructions and finally to the specialization of urethral strictures.

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* Twelve lectures, principally on phlegmasic affections of the urinary organs, delivered during the autumn of 1891, constituting the first part of a series, are now published for the guidance of beginners, and are submitted to the judgment of experienced physicians who recognize that many of the conclusions drawn from present work must necessarily be provisional, and who fully realize that "the domain of Science is infinite and her votaries must never rest."

Still further advances were made in the eighteenth century, but a gigantic step was taken almost from the moment of the introduction of lithotripsy (1824), which required the most careful study of the urethra and of those lesions of the upper urinary organs that so often contraindicate surgical interference. With lithotripsy and the advances it suggested are connected the names of the most diligent laborers in surgery of Europe and America. Despite this great progress, there remains much to be done toward improving the present knowledge of the pathology and therapy of these affections by succeeding generations of physicians, and the future advances will be proportionate to improvements in methods of study.

The main object of the proposed conferences is to outline what is conceived to be a direct and convenient method of studying the diseases that affect the urinary apparatus, and incidentally to point out the degree of responsibility assumed by the physician when he undertakes the management of any disease of this apparatus, and also his obligation to acquire an adequate knowledge of the normal and morbid anatomy and therapeutics of the urinary organs. The material requisite to this adequate knowledge is gathered from the study of medical and surgical treatises, from the observation of cases of disease, and from written and oral conferences, the object of such conferences being ordinarily to convey information in part gleaned from trustworthy sources, notably those that are not of easy access to the majority of readers, and in part derived from close observation and extended experience. In other words, these conferences, to be time and labor saving to the listener, should consist mainly of conclusions arrived at by the writer or speaker from the analysis and synthesis of his experience as well as the recorded experiences of others.

To carry out the legitimate purposes of these conferences will be to present, in the form of condensed disquisitions, the results of a careful examination of questions relating to the pathology, ætiology, symptomatology, diagnosis, and treatment of abnormal conditions of the male urinary apparatus that come within the province of surgeons.

Frequency of Diseases of the Urinary Apparatus.—It may be safely asserted that two thirds of the male inhabitants of large cities, from early infancy to extreme old age, suffer from some affection of the urinary or of the genital apparatus; that half of the adult males have had urethritis; and that at least half of all men above the age of fifty suffer from some disease of the bladder or prostate. Hence the importance of their special study.

The urinary and genital organs are primarily or secondarily affected by disease or by injury—that is to say, a disease may begin in one of the organs, and another organ may suffer secondarily from this disease; and if an organ be injured, another organ may, in consequence, become involved in disease. Again, some disease originating in a distant part of the body may disturb the function of the apparatus, and even cause disease of several of the urinary organs. For example, any disease or injury which seriously impedes the outflow of the urine reacts upon the bladder, ureters, and kidneys. Certain abnormal states of the digestive apparatus are known to give rise to hyperlithuria and glycosuria, the latter being sometimes caused by grave cerebral disease. Excessive lithuria causes irritation and even inflammation of the ureters, bladder, and urethra. Long-continued polyuria often causes renal and vesical disease.

Many of the diseases of the urinary organs are curable, and the most hopeless are amenable to palliative treatment, designed to relieve pain and prolong life.

Inasmuch as a correct conception of disease can not be formed without previous study of the nature and uses of the organs of the human body—disease being a departure from the normal state of any of these organs—it is wise to bestow more than ordinary attention upon the anatomy and physiology of the urinary and genital apparatus, and thus to take a forward step in the direction of exactness in diagnosis and success in treatment. Only a part of the required knowledge can be obtained from the perusal of works on anatomy and physiology and of treatises on the normal and diseased urinary organs; the remainder is to be gained solely from the cadaver, used with two objects: first, to learn practically the descriptive, relative, and morbid anatomy of these organs; and second, to rehearse all needed operations, even simple catheterism.

Since a dissertation on special anatomy and physiology would here be out of place, a simple sketch will be given of the composition, innervation, nutrition, and function of the urinary apparatus as an introduction to the description of diseases which are to be studied, referring the student, for further information, not only to works on anatomy and physiology, but to the anatomical laboratory.

Composition of the Urinary Apparatus.—The urinary apparatus consists of the kidneys, the ureters, the bladder, the prostate, and the urethra. The kidneys excrete the urine which, after a short detention in the renal pelves, is conveyed through the ureters—whose caliber, narrow at each extremity of the duct, averages three sixteenths of an inch, and whose length ranges from twelve to fifteen inches—to the bladder, whence, after longer detention, it is finally expelled through the urethra. Some of the organs of the urinary apparatus are common to the genital apparatus—namely, the prostate and urethra—and all of them, except the kidneys, are in close relation with most of the genital organs.

The genital apparatus consists of the testicles, the spermatic canals, the seminal vesicles, the prostate, the bulbo-urethral glands, the urethra, and the penis.

Of the organs of the urinary and genital apparatus, the kidneys, ureters, bladder, prostate, and seminal vesicles are intra-abdominal; the urethra and spermatic canals are partly within and partly without; while the penis and testicles are external.

Inasmuch as many of the diseases of the upper urinary organs are consequent upon urethral affections, and inasmuch as the diseased urethra in its divers parts requires modifications in treatment, it is necessary, for practical purposes, that these several parts be specialized. A simple division into the six following regions seems sufficient for this end: 1. The prostatic region: that part .of the canal which traverses the prostate in its longitudinal axis, from the urethro-vesical orifice to the prostatic apex. 2. The membranous region: that part of the canal which is between the two layers of the triangular ligament, from the apex of the prostate to the urethral bulb. 3. The perineal region: that part of the canal which is in the perinæum, from the anterior face of the triangular ligament to the posterior limit of the scrotum. 4. The scrotal region: that part of the canal which is covered by the scrotum. 5. The phallic region: that part of the canal which begins at the peno-scrotal junction and ends at the base of the glans penis. 6. The balanic region: that part of the canal which extends from the base of the glans penis to the external urethral orifice.

These organs are so intimately associated and so interdependent that disorders of any of the urinary organs often cause some derangement of the others and react upon the genital organs, and sometimes also upon the whole organism. This happens partly through the vascular system, partly through the medium of the nervous system.

Innervation of the Urinary Apparatus.—The urinary, like the other organs of the human body, derive their innervation from both the sympathetic and cerebro-spinal nervous systems—the one presiding over nutrition and excretion, the other over motion, sensation, and intellection; the two freely intercommunicating by many branches, and the sympathetic following the cerebro-spinal system throughout the body and supplying the muscular fibers and the blood-vessels to their utmost ramifications. The double prevertebral chain of sympathetic ganglia, besides sending communicating filaments to the nerves of the cerebro-spinal system, forms separate ganglia in the thoracic and abdominal cavities, such as the semilunar, which give off the solar plexus and superior and inferior hypogastric plexuses for the supply of the abdominal and pelvic viscera. From the sacral plexus of spinal nerves arise the great sciatic nerve, and the internal pudic, which sends a branch to the penis, one to the bulbo-cavernosus muscle, and one cutaneous branch to the scrotum and to the lower surface of the penis. These systems of nerves are conducting media for the transmission of impressions to the great centers.

When, from disease or injury, either nervous system is impaired, the function of the urinary apparatus is disturbed in a degree proportionate to the lesion of the nerve center. For example, in a case of compression of the brain where sensation and volition are null, the bladder becomes gradually distended with urine; the patient receives no warning of the fact, as he should through his sensory nerves if their action had not been interrupted; he does not experience the need to urinate and can make no complaint of pain and cry out for relief—so the urine continues to accumulate to the point of greatly overdistending the bladder. If he regain consciousness, he may soon have an urgent desire to urinate without, however, the ability to do so, and this may continue for days or weeks after the bladder has been relieved artificially. This disability is the result of direct injury to the bladder—*i. e.*, the mechanical distention to which it has been subjected owing to accumulation from a cessation of the desire to urinate. In such a case the vesical nerves have doubtless suffered from overstretching, but the muscular coat of the bladder has received, from this same cause, the greater injury, hence the length of time required for the restoration of normal urination. In ordinary complete paralysis there should be incontinence and not retention of urine—that is to say, the urine should escape from the bladder as fast as it oozes from the ureters.

A proper appreciation of the intimate relations that the urinary organs bear one to another through their supply of nerves enables the student, in a measure, to explain the phenomena to which their derangement may lead. For instance, retention of urine in the bladder often causes severe griping pain in the intestines and sometimes obstinate vomiting. Nephritic colic, stone in the bladder, and cystitis give rise to similar symptoms. The introduction of a catheter into the urethra is occasionally followed by alarming symptoms which appear to be due to shock propagated through the medium of the sympathetic nervous system whose ramifications permeate the whole body. Another phenomenon well worthy of notice is an obstinate spasmodic cough during the process of catheterism in certain neurotic subjects, which cough ceases as soon as the catheter is withdrawn. Even the act of normal urination is at times accompanied by a shiver which, in some cases, is greatly exaggerated.

Bearing in mind that the nerves of motion and sensation derived from the cerebro-spinal system also supply the urinary organs, it is easy to account for certain urinary neuroses which sometimes occur in parts of the body distant from these organs, such as the feet, legs, anterior crural, sciatic, and lumbar regions. These neuroses have long ago been recognized by surgeons as symptoms of disease of the urinary organs.

Nutrition of the Urinary Apparatus: Vascular System.—Certain arteries carry red blood to the urinary organs for their nutrition, as well as for the supply of materials to be eliminated; certain veins carry away the blood when it has become charged with effete matter; and certain lymphatic, absorbent vessels collect from the mucous surface of the alimentary canal nutrient substances, and from the tissues of the organs gather both effete and morbid materials and carry them away, some in solution, others in suspension, in a milky fluid, called lymph or white blood, which is poured into the venous torrent.

The arteries that supply the urinary and genital organs are derived from the abdominal aorta, as the renal and spermatic; and from the internal iliac, as the umbilical, inferior vesical, middle hæmorrhoidal, obturator, and internal pudic.

The renal or emulgent arteries, nearly as large as the cœliac axis, are given off at right angles by the abdominal aorta at a short distance below the superior mesenteric artery, and are especially remarkable for their large caliber relatively to the size of the kidneys which they supply.

This anatomical disproportion is in obedience to a physiological law which requires the supply of blood to be adequate to the excretory activity of the organ. The kidneys excrete from two and a half to three pints of urine in every twenty-four hours; hence the very large caliber of their arteries. The renal arteries send but few and small collateral branches to the suprarenal capsules and to the celluloadipose capsules. The right renal artery is somewhat longer than the left, and arises a little lower down. At the hilum of each kidney the artery divides into several branches, some of which enter the organ between the basin and renal vein, others behind the basin, and, after further subdivision, penetrate the substance of the kidney between the cones of Malpighi, and go to form the capillary system of the cortical portion.

The unobliterated portions of the umbilical arteries give off superior, middle, and inferior vesical branches; other inferior vesical branches arise from the internal iliacs, and these branches are distributed to the lower fundus of the bladder, to the prostate, to the seminal vesicles, and to the spermatic canals. The middle hæmorrhoidal vessels send branches to the spermatic canals, the seminal vesicles, and to the posterior part of the bladder. The obturator arteries send a few lateral branches to the bladder. The internal pudic arteries, which are the terminal branches of the internal iliacs, give off the anterior vesical, and divide into the cavernous and the dorsal arteries of the penis, and, finally, into the arteries of the urethral bulb and the superficial perineal arteries.

The veins of the urinary and genital organs, with the exception of the renal veins, are supplied with valves. The caliber of all these veins is much greater than that of the corresponding arteries, but the walls of the veins are much thinner than those of the arteries.

The renal or emulgent veins are much larger than their accompanying arteries. The left vein is a little larger, longer, and more horizontal than the right, and receives the left spermatic vein. Each renal vein originates in the cortical substance of the kidney in a great number of venules. These unite to form larger branches, which converge at the hilum into a single trunk, destined to carry the blood to the inferior vena cava. The other veins of the urinary and genital organs terminate in the internal iliac veins.

The vesical veins, according to Gillette, consist of three plexuses—the submucous, the intermuscular, and the subperitoneal plexus. The submucous plexus is made up of venules from the capillary network of the mucous membrane. At the lower fundus of the bladder the meshes of this network are much closer than in other parts and overlie each other. At the vesical trigone and around the vesico-urethral orifice the network is most highly developed. This explains the abundance of the hæmorrhage which sometimes occurs after lithotripsy, and also the spontaneous vesical hæmorrhages which now and then occur in men of advanced years.

The intermuscular plexus arises in part from the venules of the muscular coats, and in greater part from the submucous plexus. The principal veins of the intermuscular plexus follow the course of the columns of the internal muscular layer.

The subperitoneal plexus comprises a large number of satellite veins which descend from the summit toward the lower fundus of the bladder. These veins are upon the anterior, posterior, and lateral portions of the bladder. They often cause troublesome hæmorrhage in epicystotomy. The anterior veins terminate in the plexus of Santorini, the posterior in the plexuses which underlie the seminal vesicles, and the lateral end in the lateral prostatic plexuses. In the lateral plexuses small calcareous concretions called phlebolites are frequently found.

The anatomical relations of the prostatic plexus and the large veins from the plexus of Santorini, which run along the sides of the prostate, should be borne in mind during the operations of lateral and bilateral lithotomy, for, in case the incision of the prostate should happen to be extended beyond its limits, an injury of the plexus would prove a source of serious hæmorrhage. This accident has occurred in the hands of skillful surgeons.

The veins of the urethra and penis pass under the pubic arch and open into and constitute some of the afferent vessels of the plexus of Santorini. These afferent veins are the dorsal vein of the penis and some veins from the cavernous bodies of the penis and from the bulb of the urethra. The anterior vesical veins, together with certain intrapelvic veins which also communicate with the obturator veins, are among the afferent veins of Santorini's plexus. The efferent veins of this plexus are comprised, says Sappey, in four groups. Two groups, composed of the largest veins, run along the sides of the prostate; the other two follow the ischio-pubic rami and constitute the origin of the internal pudic veins. All of these terminate in the internal iliac veins. The plexus of Santorini presents on section a coarse trabecular appearance, and the trabeculæ which are the walls of dilated veins are rich in smooth muscular tissue, which adds much to their strength.

Lymphatic vessels have been traced in all the urinary and genital organs except in the mucous membrane of the bladder and ureters. Some of these organs are much more bountifully supplied with lymphatics than others, notably the external organs.

In affections of the urethra, penis, and scrotum, the lymphatics play a most important rôle, and this fact should be kept alive in the mind of the surgeon. To convey an adequate idea of the extent of the lymphatic system of the external uro-genital organs, the following is abstracted from Sappey's *Anatomy:*

No part of the cutaneous surface is so rich in capillary absorbent vessels as the scrotum. These vessels take up such a considerable part in the formation of the scrotum that it seems to be almost exclusively composed of lymphatics. From this rich network emerge on each side of the median line ten or twelve lymphatic trunks, which pass obliquely in front of the spermatic cord and lose themselves in the inferior inguinal glands.

The superficial lymphatics of the penis originate in its integument, and are especially numerous in the prepuce; the radicles arising therefrom end in the trunks that run along the dorsum of the penis. The lymphatics of the glans penis are remarkable for their size and number, and are disposed in two layers—a superficial layer, consisting of capillary radicles, and a submucous layer, of larger radicles. Both layers are continuous, at the meatus urinarius, with the network of the urethral mucous membrane. The deep layer is the starting point of multiple trunkules which converge from before backward and from without inward toward the frenum, where they unite with other branches from the urethra, forming what is called by Panizza the lateral plexus of the frenum.

The capillary lymphatics of the urethra extend throughout its entire mucous membrane, forming a network which, at the meatus, is continuous with the absorbents of the glans penis. These lymphatic vessels and those of the glans converge to the lateral plexuses of the frenum which send trunks to the dorsum of the penis, these trunks being the afferent vessels to the inguinal glands above Poupart's ligament. This peculiar disposition of the lymphatics of the urethra and penis explains why venereal ulcerations so constantly show themselves on the sides of the frenum, and how the inguinal glands become involved; why urethritis begins so constantly in the fossa navicularis; why this affection, in certain individuals, is accompanied by tumefaction of the inguinal glands; how, after being very circumscribed in its inception, it generally extends from before backward to invade little by little the whole urethral canal; finally, how this same affection may extend itself to the testicles, for the seminal vesicles, the spermatic canals, and the testicles are not less rich in absorbent vessels than the glans and urethra, the same network being prolonged to the seminal tubes of the testicles. Therefore urethritis may be regarded as a veritable angeioleucitis.

The function of the urinary apparatus consists in the excretion and expulsion of effete substances from the organism, these being separated from the blood by the kidneys, which then filter, also from the blood, a sufficiency of water to dilute and wash them from the uriniferous tubes into the calices and pelves of the ureters, thence into the bladder, where this composite fluid called the urine accumulates at the rate of from an ounce and a half to two ounces an hour and at length becomes a burden to the individual, who expels it voluntarily through the urethra. Thus is accomplished the terminal act of the function of urination. The proportion of excreta to the aqueous element, though variable, is ordinarily not far from one in twenty-four. The quality and quantity of urine excreted are subject to great variation in different persons, and at different times in the same person. A medium-sized, healthy adult male expels from his bladder from thirty-six to forty-eight ounces of urine, with an average of forty-two ounces, a day, urinating from four to six times during the period of twenty-four hours, and occupying about twenty seconds for each act of urination when the quantity of urine to be expelled does not exceed nine ounces. Young adults often retain eighteen and even twenty ounces of urine without inconvenience, and many men, up to the age of sixty, urinate only three times in the twenty-four hours, twelve or fourteen ounces each time. Ordinarily, any marked deviation in quantity, quality, frequency, or freedom of emission constitutes functional derangement, arising from extreme seasonal variations, improper alimentation, the ingestion of certain medicinal agents or of poisons, insufficient exercise, excess of exercise, mental perturbations, injuries, errors in the nutritive process, or organic diseases.

The season of the year exerts no little influence on the quantity of urine excreted by healthy subjects. In very cold weather the aqueous constituent of urine is increased, while in hot weather, the individual perspiring abundantly, it is decreased, the saline elements remaining the same, or very nearly so, in either case. In the first case the specific gravity of the urine is lessened, and in the second case it is increased. Urine of low specific gravity causes vesical irritation, with unduly frequent desire to urinate, and the same occurs in the case of urine of inordinately high specific gravity. Certain articles of diet, when freely used, are known to greatly increase the quantity of urine in healthy persons, notably the water-melon. In one instance, the juice of two pounds of water-melon having been ingested, three pints of urine passed in three hours at four acts of urination, each time giving rise to marked vesical and urethral uneasiness which lasted at least fifteen minutes. In view of these facts, persons suffering from renal disease should be cautioned against making too free use of aliments which possess diuretic properties.

Oliguria, to a moderate extent, is caused by the use of several of the food vegetables. Asparagus, for instance, when freely ingested, has been known to cause diminution instead of increase of the watery element of the urine, and there are other articles of food which produce the same effect.

Qualitative changes also occur from the use of alimentary substances. An exclusive meat diet sooner or later causes hyperlithuria in man. The urine of carnivorous animals abounds in uric acid. But certain vegetables—such as asparagus, sorrel, and garden rhubarb—cause transitory oxaluria. In directing the diet of invalids, the foregoing facts are worthy of earnest consideration.

Medicinal agents, internally administered, for diseases affecting organs other than the urinary, often act injuriously upon the urine, and thus disturb the urinary function. Among these agents may be mentioned cantharides. Even when applied externally, in the form of blisters, the active principle of cantharides has been known to be absorbed in sufficient quantity to produce dysuria and strangury. Belladonna, used too freely, causes retention of urine. Opium possesses, among its properties, that of causing oliguria, and the diminution of the aqueous element induced by the prolonged and excessive use of this drug sometimes renders the urine irritating to the extent of producing cystitis. Spirits of turpentine, given freely by mouth or rectum, has provoked strangury and hæmaturia. The too free ingestion of copaiba and other balsamics for the cure of urethritis has caused grave disturbance of the urinary function, and even fatal renal disease.

Mental concentration is well known to cause polyuria. Brain workers urinate frequently and abundantly, and their urine is generally of low specific gravity.

A sudden impression upon the nervous system—as from anger, fear, injury, etc.—so increases the blood-pressure upon the kidneys as often to cause a marked increase in the urinary excretion. From certain injuries, particularly those of the head, the urinary excretion is greatly increased, and the attendant shock so paralyzes sensation that retention of the increased urine ensues. The first duty of the surgeon in such a case is to catheterize his patient and relieve the bladder, which would otherwise become inordinately distended in a few hours.

Errors in the nutritive function lead alike to hyperlithuria, oliguria, polyuria, glycosuria, and their consequences. Persistent hyperlithuria leads to or aggravates pre-existing cystitis, urethritis, and urethral stenosis, and is the parent of certain vesical stones. In oliguria, polyuria, and glycosuria the urine possesses irritating properties that will be stated later. Various diseases of other organs—such as the heart, lungs, and liver—react in sundry ways upon the urinary apparatus, disturb its function, and finally damage permanently some of its organs, notably the kidneys. Obstruction to the urinary flow—as from a stricture, injury of, or foreign body in, the urethra, or from enlargement of the prostate—disturbs the function by causing unduly frequent and difficult urination, or even retention of urine.

(*To be continued.*)

WHAT ARE THE INDICATIONS FOR THE DISCONTINUANCE OF THE MECHANICAL TREATMENT OF HIP-JOINT DISEASE?

*WITH REMARKS ON SYMPTOMS AND TREATMENT.**

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IN the year 1873 there came under my care a little boy, aged seven years, who was suffering from hip-joint disease. The symptoms of the disease had been so slight and the invasion of the disease had been so insidious that several surgeons had denied the existence of a chronic hip-joint inflammation. But when the patient came under my observation, in consultation with the late Dr Charles M. Allin and the late Dr. Henry B. Sands, there was no doubt as to the diagnosis. The patient was quickly put in a traction apparatus, and for several months he improved rapidly. The pain had disappeared, the slight adduction and flexion of the thigh had gone, and when the apparatus was temporarily removed the patient walked with a no greater limp than that which might be attributed by many to the continuous use of the apparatus for nearly a year. Aside from the limp, the only thing of importance which remained was the impaired motion of the articulation, which upon examination passed through only about half the movement of a normal hip joint. This resistance to full and free joint movement was due wholly to a reflex muscular condition, as was proved by the administration of ether, under circumstances about to be related.

The father of the patient—a kind and sympathetic man—became impressed with the idea that the apparatus was injuring his child, although the condition of the patient had in every way improved under its use. He almost insisted that the splint should be removed, and, my objections and reasons not prevailing, I declined to remove the splint unless the proceeding was sanctioned by a formal consultation. To this the father willingly agreed, and a prominent surgeon was asked to examine the patient with me. A radical disagreement resulted. The consultant insisted upon the removal of the apparatus, a full return of exercise and liberty to the joint, and expressed himself as fully satisfied that the patient would suffer serious injury if the use of the apparatus was continued. My position was that a further use of the apparatus was necessary; that the joint, though not tender or sensitive to the conventional test of a pretty severe manual concussion, was still far from well; and finally that the reflex muscular conditions about the joint showed plainly that the articulation was far from being in a normal condition.

The father was informed of the result of the meeting, and at once suggested that a third surgeon should be added to the consultation. This was done, and, at the suggestion of the "referee," ether was administered. Under the influence of the anæsthesia thus produced there was no resistance to full and free joint movement in all directions. This condition, it was claimed by the newly added surgeon, proved that there was no true muscular protection to the joint; and he advised that the apparatus should be removed. In short, the writer was overruled in his position and views, although he insisted that the reflex character of the muscular resistance was the important diagnostic sign of hip-joint disease, and that the anæsthesia of ether would necessarily remove the purely reflex muscular conditions of hip disease, as well as, for example, the muscular conditions of hysteria.

Under protest, and with many misgivings, I removed the apparatus and watched the patient with great interest. The subsequent history of the patient may be briefly related. The limp became emphasized almost immediately, and the pain returned in a few weeks. Even then the father did not see the necessity of a return to the ease, the comfort, and the safety of the traction splint. It was not until the pain became very urgent and deformity reappeared that he consented to a renewal of the traction apparatus. The patient again improved after the apparatus was reapplied, but not so rapidly as during the period of its initial use. Before long a large abscess appeared, after which the patient steadily failed, and nearly three years after the first application of the apparatus he died as the result of prolonged and profuse suppuration. Excision of the joint was proposed after the suppuration became urgent, but the proposal was rejected by the friends of the patient.

In 1889—sixteen years after I first saw the patient above referred to—his cousin, having exactly the same name, came under my care for hip-joint disease. In this case, however, the invasion of the disease was somewhat different. The first stage was not so insidious as in his cousin's case. Still, the symptoms were very pronounced—the limp, pain, reflex spasm, and deformity were all present to a marked degree, and the outlook for the second patient was not at all promising. He was a very poorly nourished boy of six years, and his general condition was very unsatisfactory. The apparatus was duly applied, and for the first six months of treatment he received good attention at home and slowly but steadily improved. After that time the illness of his mother, plus some financial troubles, interfered with his visits to me. After about a year of treatment the mother made up her mind that mechanical treatment was no longer necessary, and she removed the apparatus. Three months later the mother brought the patient to me, and, with pardonable pride, showed me her child's hip.

The improvement was marked. The child walked without a limp. The muscles of the thigh were in excellent condition.

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* Read before the Orthopædic Section of the New York Academy of Medicine, May 15, 1891.

The child's health had improved, and there was almost perfect joint motion. The reflex muscular spasm at the affected hip joint was still present, however, though not in a marked degree. The muscular spasm was only slightly present in flexion, abduction, and adduction of the thigh. It was quite apparent in extension and in rotation inward during flexion. I presume many surgeons would have said the patient was free from hip-joint disease—and so he was, in a certain negative sense. But the joint was still vulnerable, as it is in the first apparent stage of the disease. It seemed quite probable to me, however, that a single major traumatism would reproduce the more urgent symptoms of the lesion. In order to insure the future permanency of the good result so far and so luckily obtained, I advised the mother to use a modified traction splint with limited motion at the knee for a few months longer, and the child, when I heard from him last, was wearing such an apparatus, and was slowly and surely improving.*

These two cases convey an important lesson; and they are cited from many others which might be related to demonstrate the difficulties that sometimes attend an answer to the question: "When are we justified in discontinuing the use of apparatus in the treatment of hip-joint disease?"

The first-named patient had the advantage of the best surgical opinion and advice in New York. Still, the result was very disastrous. In the second case the mother assumed the responsibility of removing the apparatus; yet the result was certainly very satisfactory. In the light of a more recent experience, I believe the first patient might have recovered if the traction treatment had not been interrupted, if it had been persisted in for a sufficient length of time, and if the traumatism inflicted by the ether test had been omitted. In the second case we have no means of judging just what the joint conditions were when the apparatus was removed. Perhaps they were of a character that would have warranted the preliminary trial that we have so often advised. But when I saw the child I believed that he was not free from the danger of a relapse; and, as I knew that the further use of protective apparatus could do no harm, I advised its continuance as a matter of precaution and safety.

The indiscriminate use of the ether or chloroform test in hip-joint disease can not, I think, be too strongly deprecated. In my own experience, the administration of an anæsthetic as a test has been almost always followed by an increase in the more important symptoms, and the reason seems very plain. Anæsthesia removes Nature's only protection to the diseased articulation, "the reflex muscular spasm," and the opportunities for the infliction of traumatism to the joint when it is helpless are very great. It is certainly an unjustifiable proceeding when the joint has reached a stage where the question we are discussing to-night is raised. When we study the joint, we want Nature's expression of its condition. It is our safest guide. We lose all this when we administer an anæsthetic; and many a vulnerable joint, well on its way to recovery, has been hopelessly injured by the almost necessary traumatism of an examination under an anæsthetic. If we are obliged to use this test as a matter of *differential* diagnosis, our examination should be very gentle and our tests should be very carefully made; for one of the dangers of an examination under an anæsthetic is the breaking up of the encysted tubercular masses, thereby producing a fresh infection of the tubercular disease.

Recognizing long ago that tubercular joint disease—and this in hip disease means almost always tubercular *bone* disease—must necessarily run a very prolonged course; and realizing, even so long ago as the period of 1863 to 1868, when I saw so much of joint disease at the Hospital for the Ruptured and Crippled, that repair must necessarily be slow, I have long since ceased to expect that there was any "short cut" in the treatment of these conditions. It is true that we can, by efficient apparatus, place the joint under the best *local* conditions for repair; we can overcome deformity and hold the joint in the best position for use when repair finally comes; we can efficiently remove that most important factor in the progress of tubercular joint disease—viz., traumatism—and we can relieve the pain, procure normal sleep, and make our patients very happy and comfortable. We can add the very efficient element of activity and exercise to the means of cure, and make climatic influence a potent factor in assisting Nature to remove a tubercular disease. I think we are all agreed that tubercular joint disease is self-limiting, and that we may aid Nature in reaching the period of self-limitation by efficient mechanical treatment; and while I think that we can always hope to abort the disease in its first apparent stage by scientific orthopædic measures, the end that we all seek, after disintegration of the joint has commenced, is not controlled as much as we are apt to imagine by the mechanical means employed; for there is no apparatus and no "mechanical method" that will *cure* tubercular disease of the joints, just as there is no apparatus, for example, that will *cure* a fracture of the thigh.

After several years' experience in the New York Orthopædic Dispensary and Hospital, Dr. R. W. Lovett, then an assistant surgeon to the institution, kindly aided me in an attempt to learn the ultimate results of the mechanical treatment of hip-joint disease pursued in that institution. The result of our efforts has been published.* A brief reference to the basis of our investigation may be permitted here, as it illustrates some of the difficulties experienced in reaching a conclusion as to the question to be discussed by us to-night. In the paper above mentioned it was stated, among other limitations that controlled the investigation, that "no case was to be considered which had not been 'discharged cured' at least four years prior to the investigation," and "that many, if not all, of the patients treated in the dispensary are *experimentally* discharged as cured before they are finally entered as *actually* cured. To explain: A patient answering to the tests we apply would be permitted to go without his apparatus as a matter of experiment for a few weeks—weekly observations being made in the mean time. In some instances symptoms would reappear during this preliminary trial after an indefinite period. The apparatus would then be reapplied, and experimentally removed again some months afterward, and this operation would be repeated until the final test of time proved that the recovery was permanent. The four years' limitation was introduced to cover the doubt that might arise regarding the permanency of the result."

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* *November 17, 1891.*—I saw this patient a few days ago. The joint conditions had not improved with the modified traction splint. I regret now that I did not use the simple traction apparatus without motion at the knee joint.

* The Ultimate Results of the Mechanical Treatment of Hip-joint Disease. *New York Medical Journal*, May 21, 1887.

It would seem that the four years' limit above mentioned ought to be sufficient to base a final report as to the results of treatment in almost any condition. But it is certain that in some cases of hip-joint disease even this period is not enough, for several of the patients reported as cured in the paper above referred to have relapsed during the four years since the report was made. In short, it is very difficult to say, in many cases, whether the disease is really arrested—just as it would seem certain that even if the tubercular process has become latent in some cases, there may yet remain a subinflammatory condition with encysted tubercular material at hand all ready to reinfect the vulnerable tissues upon the application of the proper traumatic influence. I have seen within the past month a supposed cure of hip-joint disease which relapsed sixteen years after the patient had been discharged, a slight traumatism being the only apparent cause of the relapse. We may sometimes imagine that our patients are cured, and years afterward discover that we have been mistaken—and we are very prone to forget some of our relapses as we recall, and perhaps speak of, those who have been cured.

What orthopædic surgery needs is more clearly ascertained pathological facts and less dogmatism as to methods of treatment; less enthusiastic adherence to special forms of apparatus and a broader interpretation of clinical data; less of theorizing and a more earnest search for the truth. Until this point is reached, it may safely be said that the real literature of orthopædic surgery will remain unwritten.

It is not necessary on this occasion to detail the symptoms of hip-joint disease. It does seem necessary, however, to call attention to the fact that many surgeons ignore the most important symptom of this condition. I refer to the principal neuro-muscular symptom—to the so-called reflex muscular spasm, which, if studied carefully, will tell us more about the joint condition than all the other signs and symptoms which characterize hip-joint inflammation. In the first case related above the surgeons called in consultation ignored the involuntary muscular protection of the joint, and, as the anæsthesia of ether abolished it, they regarded it of no importance. As in the early diagnosis of hip disease the signs and symptoms which are of real value are those of which the patient makes no real complaint, so, when the last stage of the disease is reached, and the question arises, "Can we safely discard mechanical treatment?" the answer will be decided almost wholly by the presence or absence of the involuntary expressions of disease, as shown by the attitude of the patient—the "joint sense"—the ability to use the affected articulation, and the general history of the case. In short, the question I ask myself under the circumstances is this: "Would I, if I saw this patient for the first time, apply an apparatus?" We are too apt to think that our patient is *cured* when he is only *better*, and, from our constant and frequent observation of the patient, to become careless in the treatment of such a chronic disease as the one under consideration. And if there is a true neuro-muscular protection of the joint, there is no doubt regarding the necessity for continuing the support—if not to prevent disease, to prevent deformity.

If we could make the absence of pain a safe criterion as to whether or not a chronic tubercular process had ceased in a joint, our task would be an easy one. But we can not do so. The worst and most inveterate cases of hip-joint disease do not give evidence at all of an oral expression of pain. It frequently occurs in tubercular joint disease that the morbid process is so insidious, but nevertheless so profound, that there exists no expressive evidence of the disease outside of the deformity, the limp, the muscular atrophy, and the reflex muscular protection. Simple locomotion—or simple passive motion—becomes a traumatism under these circumstances. And until this is fully understood by the medical profession there will be unnecessary errors in diagnosis, and patients who might be saved from deformity and death will go unrelieved. On the other hand, there may be an abscess present or there may be sinuses which are discharging, both of which are no longer connected with the joint, and yet the articulation may be in a condition where mechanical treatment is wholly uncalled for.

The closing of sinuses leading to an abscess within the joint does not always indicate that mechanical treatment may be dispensed with. On many occasions I have looked forward to the healing of the sinuses as being the end of the disease, but clinical experience proves that in many cases the disease may change from the humid to the dry form of caries, and in these cases the change is always from bad to worse. My experience proves that the strictly speaking suppurative forms of hip-joint disease are those which run the most benign course, and that the more accurately the disease resembles an acute lesion, the better is the result, and the sooner the mechanical treatment may be discontinued.

There is one test which, negatively speaking, is of considerable value. A patient with hip disease who is unable, while in the supine position, to raise the affected member from the couch with the knee fully extended, is not in a condition to dispense with mechanical protection to the affected hip joint. There is no more expressive sign of the inability of the joint to sustain the traumatism of locomotion than that shown by this test. There is nothing more positive, as applied to the inability of the muscles to obey the will which exists in hip disease with the joint unprotected, than that afforded by this test. As the joint conditions improve, the patient, who could not raise the straightened limb from the couch, will gradually regain this power, and this ability to raise the straightened limb is the first important sign of improvement in many cases. Still further, the patient who can not execute this movement without assistance can generally execute it readily if a traction splint is used with an ordinary amount of traction applied, proving that the muscles are competent to act if the interarticular pressure is relieved. It would seem during this test, with the traction applied, at first glance that the movement took place at the affected articulation. But this is not so. The traction apparatus so perfectly fixes or immobilizes the hip joint that the pelvis and the femur become practically one bone, and the real motion occurs at the dorso-lumbar spine and at the opposite healthy joint. This test amply demonstrates the ability of the traction apparatus to immobilize the hip joint. But the ability to flex the thigh upon the pelvis with the knee extended is not, unfortunately, a positive evidence of cure. It indicates improvement, and it is an encouraging sign of progress.

The ability of the joint to bear the conventional test of even severe normal concussion is not, unfortunately, an evidence of cure. Many patients with progressive disease, especially dry caries, stand this test without flinching at all.

And, finally, the absence of abscess proves nothing. The joint may be in a condition of slow but sure tubercular disintegration without any sign of abscess whatever. The worst and most obstinate cases of hip-joint disease are those which do not present any external evidence of suppuration.

There are, I believe, only two elements upon which we can positively rely in reaching a conclusion as to the propriety of discarding the mechanical treatment of hip-joint disease. These are: 1. The gait and attitude of the patient when locomotion is attempted without protection. 2. The character of the resistance to normal joint movements, as shown by the neuro-muscular protection, and the quality of the motion thus obtained.

In studying gait and attitude it becomes necessary to discriminate between the limp of chronic joint inflammation, the limp of a vulnerable articulation in the convalescent stage, and the limp of disuse and shortening.

The limp of the first condition is almost characteristic of the disease. It is marked by an expression of timidity —an instinctive and involuntary refusal to bear the weight of the body upon the affected joint. The step is very greatly modified by the instinctive effort of the patient to avoid interarticular pressure; and, instead of taking a full, easy step, the foot of the affected member oftentimes barely touches the floor, so quickly does the sound member come to its relief. Speaking mathematically, the affected joint does not do more than a small fraction of the work of locomotion. This limp may be modified by the stage or condition in which the examination is made. The instinctive protection of the joint is, however, present to a greater or less degree.

The second—that of vulnerable joint—is more like the limp, if I may be allowed the expression, of a unilateral fatigue. The joint has undergone repair to a certain extent. It may be that the tubercular process has practically ceased, or that the tubercular masses have become encysted. The patient has a sensitive joint, rather than an inflamed one, and, while there may be a conservatism about the joint movement in locomotion, the involuntary quality of the movement is lost. The joint is convalescent. It has reached a point where it can do a little work, but is not up to its full power of a normal resistance to traumatism. The step is not one of normal length, but approximates the normal in duration. It differs in all important respects from the true joint limp, and it may even exist with a modified tubercular process.

The third—the limp of disuse and shortening—may be described as the easy swing of a person who is simply lame, and who has simple muscular inertia and a slight mechanical impediment to locomotion. There is no expression of disease about it. There is no hesitation, no instinctive protection. The patient is simply lame.

The simple lameness of a cured hip disease is not difficult to recognize. It is oftentimes more difficult to differentiate between the limp of the true disease which has been somewhat modified by treatment and the limp of convalescence. The use of apparatus, too, may complicate the question, for, after an apparatus has been worn for several weeks or months, the knee does not at once resume its full function in motion, and this complicates the matter. But, if one is familiar with the expressive limp of true joint disease, he will have little trouble in deciding whether or not the limp is one that indicates a condition of joint inflammation. In doubtful cases it requires a prolonged study of limp, gait, and attitude to make them available in reaching a conclusion, and no positive conclusion can be reached unless the joint itself is carefully tested and its contribution to the general fund of information is added, for there are some patients who walk comparatively well, in the advanced stages of the disease, who need ample protection to the articulation—even as much as those who are lucky enough to have a slight pain, for pain is a symptom that is rarely ignored, even by those who have had but little experience in chronic joint disease.

No satisfactory conclusion can therefore be reached until the joint is carefully tested, and the most important symptom presented by the joint itself is that which I have ventured to call the neuro-muscular. The purely instinctive and involuntary character of this neuro-muscular sign makes it the most valuable aid we have in deciding upon the conditions existing in a tubercular hip joint. The faithfulness with which the muscles obey the neural edict, the constancy with which they keep up their guard, and the persistency with which they resist, once the limit set by the nervous system is reached, appeals to me more and more as I study their earnest protest against traumatism. And this neuro-muscular element is always present in hip-joint disease, or, if it is absent, we are unable, as a rule, to make a diagnosis. We may know after treatment has commenced, if the muscles relax their grasp, that the joint conditions are improving; we may know, if the muscles increase their control of the joint, that the pathological condition is retrograding; and if we are assured that there is no instinctive muscular protection of the joint, there is little or no need for mechanical protection. If there were no neuro-muscular element present there would be no deformity, and the danger of recurrent adduction and flexion (the bane of relapsed hip-joint disease) would be removed; so that we may safely make the quality of the joint movement and the character of resistance to normal movement pretty safe guides in deciding the question we are discussing.

First, as to the *quality* of this joint motion. It is not usual to find any crepitation or roughness of the joint within the limit set by the muscular protection of the articulation. Even if the articular cartilage is eroded, the tubercular masses give us a smooth surface, upon which articular movement occurs, and the same condition is found when the pathologically altered femoral head plays against the diseased socket. The motion that we generally find is smooth and almost normal in quality, and if we discover true bony crepitation it is certain that the joint is far from being in a condition to bear the weight and pressure of locomotion.

Secondly, as to the character of the resistance to normal joint movement. That this resistance is due to a muscular check I have often proved by the ether test. I think all who listen to me to-night will admit that a true reflex muscular protection exists in tubercular osteitis of the hip. In advanced cases—when repair has commenced, or when there are adhesions, either extracapsular or intracapsular, or both —the amount of movement under a profound anæsthesia may be far from the normal, but the reflex character of the resistance which exists during consciousness can be readily demonstrated. And in our examination of a tubercular hip joint, while the patient is not under the influence of an anæsthetic, we may find the muscular conditions permit a great degree—almost a normal amount—of movement; or we may find the joint locked by an intense and unyielding contraction of all the muscles. In tubercular hip-joint disease this limitation of motion is due to a characteristic tetanoid spasm of the muscles, and we may know, if it is present even to a slight degree, that the joint is vulnerable and is not removed from the danger of a relapse.

We do not always see our patients with hip-joint disease in the first apparent stage before deformity has occurred, and where the limp and the neuro-muscular symptoms are our only guides to diagnosis. We are rather met by a larger class of cases where the disease has progressed to the point of deformity, with or without pain, and where we must fight the battle on the basis of a badly damaged joint. These are the cases that I desire to talk about to-night as applied to the question raised in this essay. The cases seen early, that have almost normal joint movement and that have no pain or deformity, are not usually the cases that puzzle or bother us, although there are cases which commence very insidiously that seem to defy any and all treatment. We can help Nature more in the ordinary incipient cases, because she needs only slight help. What I would like to describe, if I can, is, how we may know when it is safe to discontinue treatment in the cases that have reached the deformity stage before proper treatment was applied.

I think it proper to assume that we are all agreed that the conditions presenting in hip-joint disease demand mechanical treatment. We may differ somewhat as to methods; we may even, in a friendly way, disagree as to principles; but we are all striving after the same object—viz., the relief and cure of a distressing disease.

My experience has brought me many times in contact with the problems raised by the question we are to discuss to-night, and I think I may say that I am not altogether unfamiliar with the various mechanical methods that are employed in the treatment of hip-joint disease. And I feel that I should err if I did not call your attention to the superiority of the old Taylor splint—with its strong pelvic band and double perineal pads, and with its adhesive-plaster traction—over all other forms of apparatus in the treatment of doubtful cases during the period of convalescence. I have over and over again removed the straight traction splint when the joint symptoms became, as I thought, sufficiently modified to admit of a modified perineal support, and have used various instruments with limited knee-joint movement and without any mechanism to control the knee, and with and without adhesive plaster. I have sometimes found the limited knee-joint apparatus to answer, but rarely the apparatus with uncontrolled knee-joint movement. There is something peculiarly efficient in the old straight adhesive-plaster traction splint. It controls the element of traumatism, it prevents deformity, and it relieves the joint as no other apparatus does. Its superiority over any other form of apparatus, it seems to me, needs no demonstration; and its efficiency in removing traumatism from the joint and in producing a practical immobilization of the articulation are well-demonstrated clinical facts that need no indorsement from me.

The fact is that we are unable to immobilize the hip joint unless we control the knee and prevent its flexion. If the knee is flexed and extended even a little, motion must occur at the hip, unless the hip is ankylosed; and it seems not at all unlikely that the principal function of the Thomas splint is to prevent flexion of the knee. There has been a good deal said about the movement of the pelvis as a factor which prevents immobilization of the hip. It seems not at all unlikely that the knee-joint flexion is a more important element to study and control than the pelvic movement. This element of knee-joint flexion is readily controlled by the long traction splint, especially if efficient traction is kept up; but, just as soon as we give any liberty to the knee, we insure a certain amount of motion at the hip, and many patients in the convalescent stage can not tolerate this motion for a very long time. Not only that; when the ischiadic crutch splint is applied so that traction is efficient in the erect position, the perineal pads become loosened when the knee is flexed; and this is readily explained by the fact that the pelvic support is transferred, after the knee is flexed, from the tuberosity of the ischium to the ramus of the pubes, which latter point is much nearer the knee when the thigh is flexed.

If, therefore, there is any serious doubt, keep up with the straight traction bar and the firm pelvic band with its two perineal pads. I have learned to think twice, or even three or four times, before I remove it, even in the convalescent stage of hip-joint disease; and my best results in cases where the disease has reached the deformity stage have been in those cases where this splint has been used the longest and the most continuously. For it seems demonstrated that the principal functions of any apparatus in the treatment of hip-joint disease are, first, to prevent traumatism; secondly, to remove deformity; and, thirdly, to maintain a correct position during convalescence; and these three factors are best met, in my judgment and experience, by the use of the long traction splint and the double perineal pads. There need be no fear of a prolonged use of this apparatus. It may increase the atrophy of the soft tissues, and it may exceptionally produce a greater bone shortening than would occur from simple disuse, but it does not produce intcrarticular pressure, as is the case with the Thomas splint and other forms of apparatus based upon the lever principle; and the malnutrition which results to muscle and bone is trivial when compared with that which results from a disease unnecessarily prolonged by a series of relapses. A straight limb, even if somewhat atrophied and an inch or so short, is a very useful member, as we all know.

It has occurred several times in my experience in dispensary practice that a patient with hip-joint disease would pass from observation for a long time—perhaps two or three years. But the mother or father, feeling that the child was safe in the splint, would keep up in their own way the principle of traction and protection. These patients have, some of them, returned to us with the tubercular process evidently entirely cured. Perhaps for five or six years they have worn the splint continuously, and perhaps not very efficiently; but, upon the removal of the splint, they would walk off without the instinctive limp of true joint inflammation, and with only the limp of disuse and a more or less shortened member. The muscles acted well; they were strong and efficient, and there was little or no deformity. They had been cured under a prolonged use of the apparatus—a prolonged use that might not have been sanctioned by the attending surgeon.

Prolonged treatment seems necessary in the majority of cases. Tubercular lesions of the joints are not easy to control, and repair takes place very slowly once the cartilage is gone and the bone is fairly attacked, or when there is a lesion at the epiphyseal junction, or at one of the centers of ossification. Recognizing these points fully, we may state that, if there is pain referable to the joint lesion, if manual concussion to the heel produces pain or flinching, if there is considerable deformity without ankylosis, if there is a true joint limp, or if there are abscesses or sinuses connected with the joint, we are not justified in discontinuing mechanical treatment. Or if there is reflex muscular spasm, limiting joint movement slightly in all directions; if there is almost perfect flexion of the joint, with the other movements considerably or markedly limited; if flexion and abduction and adduction are excellent, with rotation and extension limited; and, finally, if all the movements of the joint, except rotation inward during flexion, approximate the normal, there is almost a certainty that mechanical protection is necessary. Of course, it is understood that the limitation to motion above referred to is occasioned by the neuro-muscular protection peculiar to the disease. Not that it necessarily follows that an active tubercular process exists under all these circumstances; but, if too much liberty is given the joint under the circumstances above named, ordinary use of the joint becomes a traumatism, and a relapse, especially as to deformity, is almost sure to occur. This relapse may occur in a few weeks or months, or may be in a few years.

Rotation, and especially rotation inward during flexion, is always the last movement of the joint to recover. I have several patients now under observation who walk without a limp, who have no pain, and who have normal motion of the joint in every respect except rotation inward during flexion. Some of my patients have become married and have borne children, and they still have limited rotation inward during flexion; but there is no true muscular spasm in these cases. I doubt if they will ever recover this motion; and I believe this one movement may be impaired with an otherwise perfect integrity to the joint. Luckily, it is not an important movement, and its absence produces no inconvenience. But if rotation inward during flexion is limited by reflex muscular spasm, the joint is still vulnerable. The only safe thing to do under these circumstances is to remove traumatism from the articulation by some form of apparatus that acts independently of the patient's will, and which amply protects the joint without inflicting any traumatism by its own mechanism. The tubercular process, while slow and insidious, behaves kindly under scientific protection from traumatism; and one might write a long essay on the subject of the benign behavior of tubercular disease under non-traumatic treatment. This might be extended even to abscesses in tubercular joint and spinal disease, for the rarity of troublesome complications from abscesses, and the almost certainty of their absorption under efficient non traumatic treatment, is becoming more and more evident to the writer every day.

To return, however, to the subject under discussion. I have named some of the more important conditions which seem to forbid the discontinuance of mechanical treatment. Let us now consider the other side of the question and ask, What are the conditions which make it safe to remove the apparatus?

In answering this question much must depend upon the stage at which treatment was commenced and the general history and behavior of the disease under treatment. It is to be supposed that deformity has been overcome, that the question of abscess, etc., has been eliminated, and that the joint shows, by the test of attitude, limp, and gait, that the vulnerability has been so far modified that an experimental test can be made; for I feel that the first removal of the apparatus should be regarded as an experiment to be closely watched, with the chances of failure in excess. Bearing in mind the conditions which clearly contra-indicate the discontinuance of mechanical support, to which reference has already been made, we are, as a final test, practically reduced to a consideration of the neuro-muscular symptoms. It does not answer to disregard the danger signal which Nature has kindly given us. I feel assured that, if a true neuro-muscular protection of the joint is present in the slightest degree, even if the limp is absent, there is danger. If there is only a slight degree of muscular protection, the danger is reduced to a minimum, and many patients, like the second case related in the first part of this paper, may recover almost full motion of the joint without prolonged mechanical treatment. But I am convinced that even in cases of this class some apparatus which modifies traumatism is necessary to secure the best attainable result; and I am very sure, from a prolonged and careful study of a large number of cases, that many patients in the deformity stage of the disease who are permitted to go about without support and who have true neuro-muscular symptoms will sooner or later relapse. It does not answer to rely upon negative evidence alone in these cases. It does not do to say: "There is only a very little reflex muscular resistance; it will probably wear away in time"; for the reverse is almost always true, and the little muscular resistance becomes a greater one in a short time. When the surgeon reaches a point where it would seem that the traction or some other form of apparatus can be dispensed with, there should be still kept up some kind of mechanical support which will modify traumatism for a prolonged period; and while the few cases which might recover without this intermediate treatment may wear the apparatus longer than seems necessary, the many will be benefited, and we shall have uniformly better results and fewer resulting deformities; for a vulnerable joint in the period of convalescence is pretty sure to become deformed, and an active tubercular process may be re-excited by a major traumatism or a succession of minor ones; and if some one could only invent the ideal intermediate splint, which would protect the joint with a minimum amount of inconvenience and expense, he would confer a great blessing upon orthopædic surgery.

I do not think any one exists to-day who can safely predict what course a vulnerable joint in the stage of convalescence will pursue under the removal of the restraint imposed by properly applied apparatus—and I think this is due to our very indifferent knowledge of tubercular joint lesions undergoing repair, to our lack of clinical signs by which we can know the exact location of the lesion, and hence judge approximately as to the effect of traumatism upon it. One can readily see that the lesion may be located at the joint surfaces or at a point contiguous to the joint, so that traumatism may affect it seriously or even only slightly. Hence we must be driven to an experimental trial and test, standing ready, by an early recognition of the signs which accompany or precede a relapse, to maintain the advantage gained by a prolonged treatment; and we must learn that we need not fear the effect of prolonged mechanical treatment upon the parts remote from the joint as much as we must dread the effect of an unheeded cry of the joint for prolonged protection.

A relapse may occur even after the limp has entirely disappeared. I have known this to happen several times. In all these cases, however, the reflex muscular spasm persisted to a greater or less extent. A recent case illustrating this point occurred in the service of Dr. Myers at St. Luke's Hospital. After the usual treatment the hip-joint symptoms became very much modified and mechanical treatment was discontinued as a preliminary trial. The patient soon lost the "splint motion," and she could walk with a perfectly normal gait. There was no limp or any perceptible difference in the use of the two limbs in walking or running. The patient could even hop with the affected member with perfect ease. There was no pain or swelling or deformity. There remained, however, a slight but easily demonstrated reflex muscular resistance to rotation inward during flexion, and to extension of the thigh beyond the horizontal plane of the body. The patient seemed so well that the father desired to remove her to her home in Massachusetts. I advised Dr. Myers, who kindly asked me to examine the patient, to keep her under observation, saying that I believed that, if she went to her home without proper mechanical support, she would relapse. The father took his daughter home, against Dr. Myers's advice, and without a splint. After an absence of about six months she returned with the disease in the deformity stage, with marked reflex muscular spasm in all directions, with pain, a slight swelling in the inguinal fossa, and with the thigh markedly abducted, flexed, and rotated out.

This and the second case related in this paper, and other similar cases, make it seem certain that there is a recognizable stage of hip-joint disease which antedates the limping stage, and that the neuro-muscular signs precede the limp, as I have pointed out on a previous occasion.*

The refuge of the surgeon in a condition so chronic, so difficult to relieve, and at times so uncertain in its result, would naturally be in some radical procedure. And surgery has not neglected the operative side of the question. Excision of the hip joint has been performed many times, and its results have been before us for study and comparison for years. We may fairly reach the conclusion that this operation is not so popular or so frequently resorted to as it was a few years ago. Its results are far from satisfactory in many cases to which it would seem especially applicable. And this may be due, in a measure, to the fact already pointed out—viz., the lack of clinical signs by which we may recognize the exact location and the extent of the tubercular lesion. We do not know, when we cut, just what we are going to find. If we could be assured, for example, that there was little or no chronic osteomyelitis of the femur, or that there was no disease of the acetabulum, and the operation was limited to cases of this class, the results of hip excision would compare favorably, for example, with those of excision of the knee. But we are unable to determine, in our present state of knowledge, by clinical signs, the location and the extent of the lesion. In addition to this, it is almost impossible to completely excise the acetabular half of the joint. Deeply buried in the pelvis, and with only a very thin bony partition separating the joint from the pelvic fossa, we must in many cases perforate the non-articular portion of the acetabulum if we excise any considerable osseous tissue. The so-called operation of excision of the hip joint is generally a decapitation of the femur, coupled with an incomplete or imperfect removal of the tubercular disease at the acetabulum—in short, it is not a true excision of the joint. And the frequent reappearance of disease and the danger of prolonged suppuration after excision of the hip make it apparent that the operation is not always a safe or certain one in its results.

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* On the Principles of the Mechanical Treatment of Hip-joint Disease. *N. Y. Medical Journal*, November 23, 1889.

Notwithstanding all this, the operation is sometimes demanded by the circumstances surrounding the patient and by the expressed pathological conditions present, but I think it requires a very extensive experience and a more than ordinarily judicial medical mind to indicate the cases that would do well under an excision of the hip joint.

On the other hand, the mechanical treatment, though often prolonged and generally tedious, promises better results to both life and limb than the operative measure. The conservative method may be more difficult, it may require prolonged training to make it successful, and our knowledge of the ideal mechanical treatment may yet be in its infancy; but I am assured that Nature aided in these cases is better than Nature forced, and my experience proves that it is better to await the self-limitation of the disease under proper mechanical, constitutional, and climatic treatment, than to attempt the radical removal of a tubercular disease in an articulation where Nature has placed so many barriers in the way of a complete and satisfactory excision of the entire joint.

The best results are undoubtedly obtained under mechanical treatment in those cases where the condition is recognized and treatment is commenced in the first apparent stage of the disease—where we have only slight neuro-muscular signs and a slight limp as exponents of the disease. In many, but not all, of these cases we may expect to secure perfect and free joint motion without any modification of rotation inward during flexion. After deformity and pain appear, and the neuro-muscular signs and the limp become pronounced, we may safely conclude that the integrity of the joint is seriously impaired; and we must work to secure the best attainable result, which may be a shortened member in good position, with or without movement at the articulation. And if some one among us will point out how we may secure early ankylosis in many cases of this class, he will earn a brilliant reputation.

My answer to the question which heads this essay is this:

In the first apparent stage of tubercular disease of the hip joint—where there is no deformity present, and where we have only the neuro-muscular signs or the slight limp, or both, to guide us, as well as in the more severe stage of the disease, where deformity is present, where tubercular disintegration of the jointh as commenced, and where the muscular protection of the articulation is more pronounced—the only safe guides for discontinuing mechanical treatment are, first, the absence of the expressive attitude and gait of tubercular osteitis of the hip joint; and, secondly, an essential modification or an abolition of the instinctive neuro-muscular protection of the articulation. And, further, I believe that in all but the exceptional cases a relapse as to the deformity, or the disease, or both, is likely to occur as the result of the traumatism of ordinary locomotion, unless proper mechanical protection is maintained until the articulation is free from true reflex muscular spasm or is ankylosed.

A Political Trichina.—The *British Medical Journal* suggests that the trichinæ said to have been found in American pork at Solingen may have some relation to the McKinley tariff.

SOME UNIQUE CASES OF VESICAL SURGERY
OCCURRING IN GENERAL SURGICAL PRACTICE.*

By FREDERIC S. DENNIS, M. D.

During the past few weeks it has been my privilege to have under treatment some interesting cases of vesical surgery. Among these cases are several which present some clinical points of unusual interest. I have therefore selected a few of these cases to present to this association as a clinical contribution to the work of the society. These cases have occurred, with some exceptions, within the past month; but I have introduced one or two other cases for the purpose of illustration.

I shall first report *three cases* in which a distinct *cul-de-sac* existed in the perinæum, in two of which I have removed calculi, and in the third one of which spermatic fluid was collected in a pocket upon the floor of the urethra.

Next, I shall report *three* cases of stone in the bladder, each one of which possesses some points of unusual interest, and in each one of which a suprapubic cystotomy was performed.

And, finally, I shall report *three* additional cases of vesical surgery which have occurred during the past month, in two of which calculi have formed with a peculiar nucleus.

Case I.—William McE., aged thirty, was admitted to the Harlem Hospital suffering from a deep perineal abscess. The patient, eleven days previous to his admission, slipped from a scaffold and fell astride of a staging horse and ruptured his urethra, which gave rise to extravasation of urine and deep perineal abscess, with extensive sloughing. When the patient was admitted to the hospital the was exceedingly weak and anæmic. There was a large opening in the perinæum, and the two ends of the ruptured urethra could be seen separated to the extent of two inches. He was also suffering from acute cystitis. During the few days following his entrance into the hospital he had several severe hæmorrhages, which Dr. Lewis, the house surgeon, controlled by pressure, by ligature with forceps and tenaculum, and by every means that could possibly be suggested. These hæmorrhages would be so severe as to necessitate hypodermics of brandy and tincture of digitalis, as he was apparently pulseless at times. On November 5th he had eleven hæmorrhages in rapid succession. His condition was now most alarming, and I at once proceeded to ligate the internal pudic artery as it emerges from the pelvis at the greater sacro-sciatic foramen to cross over the spine of the ischium, to enter the pelvis again through the lesser sacro-sciatic foramen. With this end in view I made an incision along a line drawn from the posterior superior spinous process of the ilium to the tuberosity of the ischium. The five-inch incision was made parallel to the fibers of the glutæus-maximus muscle. Having divided the integument, the fascia, and having also separated the fibers of the glutæus-maximus muscle, and having cut the deep fascia beneath this muscle, the internal pudic artery was found under the pyriformis muscle as it crossed the spine of the ischium. The artery was just internal to the sciatic artery, and was accompanied by the pudic nerve and the venæ comites. The aneurysm needle was passed around the internal pudic artery and the vessel ligated. The patient was now stimulated, and finally rallied from his almost pulseless condition. The hæmorrhages which thus threatened his life were arrested. His wound in the perinæum began subsequently to granulate, and a catheter was introduced through the penile portion of the urethra until it came out in the perinæum. The end of the catheter was then passed on until it entered the proximal end of the urethra, bridging over a space of two inches in which the continuity of the urethra was interrupted. Granulations soon covered the catheter, and after a period of time the wound healed in the perinæum, and the patient passed most of his urine through the penis. An artificial two inches of urethra was thus formed, the perineal fistula closed, and his urethra was finally completely re-established. After leaving the hospital the patient was married, and in less than six months his wife became pregnant. There is at present no opening in the perinæum, and his urine all passes *per vias naturales.* The patient says that after sexual intercourse only a small emission takes place, and that the spermatic fluid collects in a small pouch or *cul-de-sac* in the perinæum, at the site of the rupture of the urethra. This fluid is finally ejected from his urethra after a few hours.

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* Read before the Society of the Alumni of Bellevue Hospital, March 4, 1891.

Remarks.—The points of interest in this case are, *first*, the successful ligature of the internal pudic artery to arrest alarming hæmorrhages. It is the only case that I can find where the artery has been tied outside of the pelvis for the arrest of hæmorrhage of the terminal branches of the internal pudic artery in the perinæum.

The *second* point of clinical interest is the complete re-establishment of the continuity of the urethra after its rupture, accompanied by a separation of two inches between the distal and proximal ends.

The *third* observation is the impregnation of his wife after a laceration of the urethra, accompanied by a separation of two inches, and with no permanent perineal fistula left as a result of his injury.

Fourth, the use of a soft-rubber catheter which was left *in situ* to allow urine to escape from the bladder, and also to allow a flushing of the bladder to cure the cystitis, and at the same time to form a framework for the granulations to re-establish a new channel or urethra.

Case II.—I. L., aged forty, was sent to me by his family physician suffering from a vesical calculus. Upon examination, I found a stone in the bladder, and upon the following day, having made every preparation for lithotomy, no stone could be detected in the bladder, although at the previous examination its presence was perfectly evident. Following the rule of never operating for stone in the bladder unless it can be found at the time of the operation, the lithotomy was deferred. Some days later the stone was again felt in the bladder, and I performed a median lithotomy. The calculus was contained in a *cul-de-sac* projecting from the floor of the urethra near its membranous portion. It was into this pocket that the stone had fallen which prevented its detection at the time of the previously contemplated operation. The history of the patient revealed the fact that many years previous he had been operated upon for stone in the bladder, and that the present stone which I have here this evening is one formed in the perineal wound of the first median lithotomy.

Remarks.—The points of interest in this case are, *first*, the inability to find the stone in the bladder at every examination owing to the free excursion of the stone from the bladder into the pocket in the perinæum. *Second*, the formation of the stone in the perinæum instead of the bladder after a lithotomy.

Case III.—T. P., Italian, aged thirty, applied to the Harlem Hospital, February, 1891, for relief from a stone in the bladder. Upon examination, a calculus was detected in the urethra, but none in the bladder. A median lithotomy opened up a *cul-de-sac* in the floor of the urethra and in the perinæum, in which was contained the calculus which I present this evening. The history of the patient is precisely similar to the one just described. He was operated upon several years ago for stone in the bladder, and now a second stone had formed and was lodged in a cavity or pocket in the median line of the perinæum, and which opened directly into the floor of the urethra. During a second examination at the time of the operation the stone could not be found, although its presence was certain. The stone is phosphatic and is jet-black from the hæmatin in the blood. If either of these cases had been previously operated upon by the suprapubic method, no stone would have formed in the perinæum calling for second lithotomy.

Remarks.—The points of interest in this case are, *first*, the fact that a urethral stone can be detected in the bladder at one sitting, and at the next examination its presence can not be demonstrated. Hence the care that should be exercised in examining a patient with suspected stone. *Second*, the fact that this stone was formed outside of the bladder, and was the result of a previous lithotomy. In this second case, as in the one already mentioned, a suprapubic cystotomy would have prevented the recurrence of stone in the perinæum. These three cases, together with a fourth one, which I have met with and the stone from which I present this evening, are strong arguments against perineal operations for removal of stone in the bladder. I have never seen a case of stone in the bladder form after a suprapubic cystotomy, for the reason that the calculi are entirely removed, and the cystitis perfectly cured by free and antiseptic flushing of the bladder. There are other arguments equally forcible to advance in support of a suprapubic cystotomy over any perineal operation, but I am illustrating only one point which has not seemed to have attracted the proper attention from surgeons.

Case IV. *Suprapubic Cystotomy; Removal of an Oval Calculus weighing One Thousand Three Hundred and Sixty Grammes, and Seven Inches in Circumference and Two Inches and a Half in Diameter.*—F. P., aged twenty-four, single, consulted me in reference to a stone in his bladder, having been sent by Dr. Holton, his family physician. Patient stated that he had suffered from this stone for nineteen years, and that at five years of age he was passing bloody urine. During these nineteen years he states that he has had pain at the time of micturition, and often during the act his water would stop suddenly and he could only empty his bladder subsequently by allowing the urine to dribble away from the urethra. There have been times during this long period of years when the stone did not give rise to much pain and the urine was not bloody. The urine contained a large quantity of pus and abundant mucus and blood. His general condition was unsatisfactory. He was exceedingly pale and emaciated, and weighed less than one hundred pounds. I removed the calculus by the suprapubic cystotomy without meeting with the slightest difficulty. In one month the patient was entirely well, and in six weeks from the day of the operation he had gained *thirty-five* pounds in weight.

The patient had become addicted to the morphine habit, but since the operation he has discontinued its use entirely. He is in perfect health, and has no bladder disturbance.

Remarks.—There are several points of interest connected with this case. *First*, the long period of time—nineteen years—that he suffered from the presence of the stone. *Second*, the large size of the stone, which measures seven inches in the long circumference and five inches in the short circumference of the oval, and two inches and a half in diameter. *Third*, the entire relief from the morphine habit which had existed so many years. *Fourth*, the rapid convalescence after removal of the stone with a normal condition of the bladder and no intervention at any time during the nineteen years of a pyelitis. *Fifth*, the great facility with which the stone was extracted by the suprapubic method. *Sixth*, the removal of so large a stone through the perinæum would be attended with great risk of lacerating the neck of the bladder, which might lead to a fatal issue.

CASE V. *Suprapubic Cystotomy; Recovery; Weight of Stone, Two Hundred and Twenty-three Grains; Circumference, Four Inches; in the Short Diameter, an Inch and an Eighth; in the Long Diameter, an Inch and a Half.*—P. R., aged eight, was sent to me by Dr. Gibbons, of Pittston, Pa. Patient has suffered from symptoms of stone in the bladder for some time. He was exceedingly emaciated and in very feeble physical condition. This boy was so poorly nourished and in such a weak condition that he was kept for some time in bed under a nutritious diet until his strength could be improved sufficiently to prevent his dying while under an anaesthetic. In the course of six weeks his condition had improved, and I performed a suprapubic cystotomy. The calculus was removed without any difficulty in a few moments. The rectal bag was employed; also the bladder was distended with Thiersch's fluid. The bladder was elevated so that the stone was taken out without any difficulty. There was marked improvement in his general health, although during his convalescence he suffered from an abscess of the submaxillary gland, which was very painful and which required a difficult dissection to relieve. The wound healed, though slowly, on account of his poor physical condition. After several weeks he returned home to Pittston. A letter received from Dr. Gibbons states that he is well and gaining rapidly in strength.

CASE VI. *Suprapubic Cystotomy; Weight of Stone, Two Hundred and Twenty-five Grains; Bladder Wall coated with Phosphates, and the Bladder containing Six Calculi; Recovery.*—E. Q., aged twenty-four, farmer from Cornwall, N. Y., consulted me for some surgical trouble. Patient was sent by Dr. Lent, Jr., who diagnosticated stone in the bladder. A Thompson's searcher was introduced and a calculus was detected. He had suffered from the symptoms of stone in the bladder for six months. The stone was removed by the high operation. The bladder was opened and the stone, which was very soft, was removed. Upon introducing my finger into the bladder, there was felt a thick incrustation of phosphates lining the mucous membrane. The deposit was widespread and tenaciously clung to the bladder wall. The catheter was now introduced again into the urethra and a warm solution of bichloride of mercury was injected in a full continuous stream into the bladder while the patient was lying upon his side. With my finger-nail I was enabled to scratch off the deposit from the mucous membrane of the bladder, and the stream of water washed the *débris* out through the abdominal wound. It seemed almost a hopeless task at the start to remove the phosphatic coating of the interior of the bladder. The employment of the finger-nail as a substitute for Heber's scoop, which is used in scraping out bone cavities, enabled me to remove all the phosphatic deposit. Dr. Pierson, of Orange, and Dr. Garmany kindly relieved me, and in less than an hour the bladder wall was free from any concretions which hitherto adhered to the bladder mucous membrane. The irrigation was kept up during the entire scraping process, and the interior of the bladder was thoroughly washed and cleaned. There was but little hæmorrhage and the patient came out of the influence of the anæsthetic very quickly, and upon the third day sat up in bed and was able to walk about the room in less than ten days. He made an uninterrupted recovery, and returned home three weeks from the day of the operation. Since the operation he has had no vesical trouble and has written me that he is in perfect health.

Remarks.—The points of great interest in this case are: *First*, the rapid convalescence after removal of a stone from the bladder. *Second*, the complete restoration of the function of the bladder after scraping off the phosphatic incrustations which by no perineal operation could have been successfully performed. *Third*, the special advantage which the suprapubic cystotomy affords in enabling the surgeon to cure the patient from a condition which would lead to the formation of a new stone, and a most intractable cystitis after the perineal lithotomy.

CASE VII.—T. L., aged seventeen, residing in a neighboring city, was complaining of vesical irritation. I was requested to see him by his family physician. On the 5th of this month I examined the patient and found him suffering from stone in the bladder. He confessed to the following peculiar history: Six weeks previous to this date he had rolled a piece of tutti-frutti chewing-gum into the shape of a bougie. This he introduced into the urethra, and a part of the bougie was broken off and entered his bladder. Having explained to the parents as best I could the condition in which I found the young man, I was asked to perform an operation for his relief. I selected the suprapubic cystotomy, and removed five calculi, each one having a nucleus of tutti-frutti chewing-gum. The nucleus can be seen by examining the calculi. The odor of the chewing-gum was still present, notwithstanding the unusual conditions to which the article had been subjected.

The boy reacted well, never had any high temperature, and in two weeks was well. The calculi are here for inspection. It is now about three weeks since the operation was performed, the boy is up and about the house, and there is no vesical fistula and no cystitis.

CASE VIII.—J. P., aged four years and a half, was sent to me by Dr. Rau, of this city, with the diagnosis of stone in the bladder. Having detected the calculus, I performed last Monday a suprapubic cystotomy. The bladder was reached without any difficulty. The rectal bag in this case was omitted, owing to the fact that the bladder is situated higher up in children. I removed two large calculi from the bladder, which I present this evening.

Remarks.—There are several points of interest in this case. *First*, the absence of any symptoms, except a mild cystitis occurring periodically, indicating the presence of calculi in the bladder. The child had always played about with other children, and complained of little or no pain such as would be expected in a child of four years with two such large vesical stones. There had never been any hæmaturia, and the child was brought to Dr. Rau because his urine did not appear normal to the mother.

Second, the healthy condition of the mucous membrane of the bladder, considering the fact that these calculi have been there for two full years. The tolerance of the bladder in this case was most remarkable.

Third, the great facility with which large-sized calculi can be removed from the bladder by the suprapubic operation. A lateral or median perineal lithotomy in so small a child with such large calculi would, in all probability, cause considerable laceration of the neck of the bladder.

CASE IX. *Hæmorrhagic Cystitis occurring as a Complication in Typhoid Fever; Formation of a Vesical Calculus with Blood-clot as a Nucleus, and Extrusion of a Complete Cast of the Interior of the Bladder.*—This patient was taken ill with typhoid fever on November 25, 1890. Acute Bright's disease developed within a week from the time the patient was sent to bed. The symptoms were most alarming. On December 1st the following is the analysis of the urine:

Amount of urine, four ounces in twenty-four hours. Albumin, three grammes to the litre. Specific gravity, 1·035. Sugar. Hyaline, blood, and granulo-epithelial casts. Thirty-seven grains of urea. Leucocytes in abundance.

This condition of the urine, which was most serious, was accompanied with uræmic symptoms and tetany. The temperature ranged from 104·5° to 106·5° F., with a pulse at times 160, and Cheyne-Stokes respiration, with violent delirium. The patient remained very ill until December 26th, when the kidney symptoms showed evident signs of improvement. The bladder now became involved and a hæmorrhagic cystitis developed. The patient passed a vesical calculus with a blood-clot as a nucleus. In four days an entire cast of the bladder was extruded by the urethra. The condition of the bladder now began to improve and finally the cystitis entirely disappeared and the patient made a complete recovery. With the medical aspect of this case I shall have little to say. I shall, however, confine my remarks to a consideration of the cystitis, which became a true surgical complication, and which called for surgical treatment in conjunction with the medical management of the case. For over a period of one month the urine was bloody and contained blood-clots. This condition was consecutive to the hæmorrhagic nephritis, which preceded the inflammation of the bladder. The patient suffered from retention of urine, and even by the aid of a catheter it was often impossible to draw the urine, owing to the presence of the calculi which offered a barrier to the introduction of the catheter. There was also prolapse of the urethral membrane. The bladder was washed out with a boric-acid solution, half an ounce to a pint of warm water, alternating with a four-per-cent. solution of chlorine water. The patient was catheterized two hundred and fifty times, and each time the catheter was boiled for fifteen minutes, and then immersed in a solution of bichloride of mercury. The bladder was washed out with bichloride of mercury (strength, 1 to 10,000) whenever the pus seemed to be very abundant. After the bladder had been washed out with the antiseptic solutions, iodoform suppositories were from time to time introduced into the bladder by means of an instrument invented by Mr. Reginald Harrison, of London. The antiseptic solution cleansed the bladder for the time, and the iodoform suppositories disinfected the residual urine. It was a most remarkable clinical fact that eleven days after the discontinuance of the suppositories the odor of the iodoform was apparent in the urine. The cystitis continued for a month; but it was kept under control by frequent washing out with an antiseptic solution and iodoform suppositories. On February 3d the urine was free from pus, albumin, and the quantity fifty-six ounces, and from this time on the patient's bladder became, and is at the present time, perfectly normal. The urine shows no deviation from perfect health.

Remarks.—The points of clinical interest are, *first*, a severe hæmorrhagic cystitis with formation of vesical calculi with blood-clots as nuclei, occurring as a sequel to acute nephritis, becoming amenable to treatment with perfect restoration of the normal function of the bladder.

Second, the extrusion of a complete cast of the interior of the bladder by the urethra without any resort to a surgical operation.

Third, the hæmorrhages from the bladder in typhoid fever, which is at least unusual.

Fourth, the expulsion of the vesical calculi by the aid of Nature rather than by any surgical operation. The wisdom of not operating is apparent aside from the fact that the patient's condition would not permit of any operation. If the bladder had been explored by an incision the sloughing would have been so extensive that life would have been unbearable from continual dribbling of urine.

Fifth, the alarming condition of the patient with typhoid fever, to which was added this surgical complication, and from both of which complete recovery followed. The tetany continued five days and the inferior maxilla was firmly set, so that no nourishment could be taken by swallowing, owing to a paralysis of the œsophagus. Rectal enemata were constantly administered, and when the lower bowel became so irritable that it would no longer retain any nutriment, milk was then administered in half-teaspoonful doses until the mouth was filled, then the head brought forward and the shoulders slightly raised, and the fluid flowed by gravity into the stomach. This obviated the use of the soft catheter introduced through the nostril into the posterior pharynx and œsophagus. This method of feeding was not attempted, owing to the maniacal delirium from which the patient suffered, and the danger which might arise from the struggling which would ensue. The patient acquiesced in the drop-by-drop feeding, but would evidently not submit to the catheter without great resistance, in view of the fact that an attempt to poison him was in his mind. The suppression of urine was managed by hot fomentations over the kidneys and by the usual internal remedies employed in such cases. After the suppression had existed for nearly twenty-four hours, as a last resort large quantities of distilled water were introduced high up in the colon by the use of a sixteen-inch rubber elastic tube. After the injection of several quarts at frequent intervals, the urine began to be secreted and a copious flow soon followed. The cold bath was not employed to reduce the temperature, which was on several occasions as high as 106·5° F., on account of the fact that an acute nephritis existed and, with the pulse almost imperceptible, it was feared that the shock would be fatal.

Sixth, the escape from a surgical kidney with such a severe cystitis which was so protracted.

Seventh, and finally, the lesson which this remarkable case teaches is that—no matter how alarming the symptoms are, even with a temperature of 106·5° F., with only thirty-seven grains of urea, with all kinds of casts, with practical suppression, with an abundant quantity of albumin, with a pulse 160 and above, with uræmic convulsions and tetany, notwithstanding all symptoms to indicate the certain approach of death—perseverance in treatment should not be abandoned. The case illustrates a most important principle, that treatment should never be discontinued as long as there is breath in the body, even though the pulse can not be felt. This case has no parallel in the archives of medicine.

A CASE OF MYCOSIS INTESTINALIS, OR ANTHRAX.*

By F. H. WIGGIN, M. D.

I have to present for your consideration this evening a case which is rarely met with, if I am correct in the diagnosis, which I was able to make only after the autopsy. To myself and the gentlemen who saw the case with me in consultation it was of unusual interest from its sudden and inexplicable change of character. From appearing at first to be comparatively unimportant, it suddenly developed symptoms causing the gravest alarm, which was justified by the rapidity of its fatal termination:

On October 29th I was called to see Charles P., a butcher, aged thirty-three years, and married, who gave the following history:

He had not been feeling well for some days, but was up and about on the 27th and 28th. He had not complained of sore throat, but said that on the 28th he had "coughed up a lot of matter." When asked where it came from, he said he thought from his throat. He said he felt very nervous, which was unusual for him, and that he was sure he would not recover. His bowels were constipated.

On examination, I found the temperature 100° F., pulse 105, respiration 28. The left tonsil was in a very bad condition, dark-red in color, much swollen, and had a number of sloughs on its surface. I ordered half a drachm of tincture of guaiacum in milk and five grains of sulphate of quinine every three hours, and a 1-to-3,000 solution of bichloride of mercury as a local application to the tonsil every two hours.

I was sent for early on the morning of October 30th, and found the patient complaining of cramps and a hard, sharp pain about an inch and a half to the right and above the umbilicus. I gave a hypodermic, and, after the pain had subsided, ordered an enema. Temperature 100·5°, pulse 108, respiration 29. I stopped the guaiacum and ordered a quarter of a grain of sulphate of morphine every four hours if the pain returned, and, if not, sulphate of magnesium and senna, sulphate of quinine, peptonized milk, and whisky. I told patient's wife if pain continued during the day to send me word. I heard nothing till the following morning at four o'clock, October 31st, when I was summoned in great haste, and found that the patient had been quite comfortable from the time I last saw him till midnight. (The enema had had no effect.) At midnight he awoke, complaining of a fearful pain at the same spot as on the previous day, and he had a violent chill, which subsided; but pain increased steadily in intensity in spite of morphine, and at last I was sent for. Temperature 101°, pulse 120, respiration 30. The throat was improved in appearance; sloughs cleared off. I had to administer three quarters of a grain of morphine hypodermically, besides using hot applications, before the patient got relief from the pain, and three hours later (7 A. M.), the patient having no pain but marked tympanites, I gave an enema. This gave no pain, and an hour later water came away with very little fæcal matter. The patient being easy, I left, and returned at 3 P. M., when patient's friends told me he was free from pain, and for the first time since his illness began he was not nervous, and believed he would recover. On entering the room, however, I saw that the patient was in a state of collapse. Temperature, 104·5°; pulse, 150; respirations, 60; abdomen greatly distended; and on percussion absence of hepatic dullness. Consultation was called. Peritonitis with perforation was diagnosticated, but it was not thought best to perform laparotomy on account of patient's general condition. From this time on patient steadily grew worse, tympanites became so marked that it interfered with respiration, and at 11 P. M. I aspirated intestines, which greatly relieved patient; his mind remained clear to the last; he gradually failed, and died at 9 A. M. on November 1st. On the morning of November 2d, twenty-four hours after death, the autopsy was made, there being three other gentlemen present. Decomposition had set in. On opening abdomen, evidences of general peritonitis, intestines matted together, serum in peritoneal cavity; on examining intestines, found them ecchymosed, perforation in ileum about twelve inches from cæcum, another eighteen inches; intestinal wall at these points infiltrated with pus; same condition at junction of cæcum and appendix, but perforation had not yet taken place; evidences of former appendicitis; liver, spleen, kidneys, stomach, and lungs very much congested; pulmonary œdema.

On questioning the patient's friends, we found that he had last butchered some animals about a week previous to my first visit; also that, as was his custom, he had held a knife in his mouth while skinning the animals, which we thought might account for primary infection in the throat; after carefully weighing all the facts, we came to the conclusion that it was a case of anthrax, or, according to Dr. Yeo, mycosis intestinalis.

Trichinosis on Board Ship.—" The German medical journals, as well as the daily press, have recently been saying harsh things about the American hog, basing their remarks on the report of the outbreak of trichinosis on board the Bremen bark Nixe at Iquique, owing, as was at first believed, to the crew having eaten pickled pork of North American origin. The occurrence was pointed to as fully justifying the exclusion of American pork and bacon from Germany. It turns out however, that the inculpated pork was undoubtedly Chilian, and was purchased in the market at Iquique; furthermore, it was not pickled at all, but fresh, and it appears to have been eaten raw by the crew. Of the seventeen men who partook of the stuff, all suffered from trichinosis. The incident would seem to point the moral, not so much that American pork is unsafe to eat as that the habit of eating pig's flesh uncooked is dangerous as well as disgusting."—*Boston Medical and Surgical Journal.*

Experiments in Gunshot Wounds.—" The army surgeons who have been attending the course of operations under the direction of Professor Kocher, of Berne, have just been studying at Thoune the destructive powers of the new Swiss rifle. In their presence have been practiced several series of rifle shots, at ranges of from 60 to 600 metres, with bullets proportionately varying in velocity. Among the objects fired at were materials of various kinds, including osseous structures and pieces of wood filled with liquid, in order to take note, by way of analogy, of the effects of the bullet on the living subject. These experiments have amply confirmed what has long been practically admitted, that at high velocities the bullet discharged from small-bore firearms produces effects analogous to those of an explosive projectile."—*Lancet.*

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* Read before the Society of the Alumni of Bellevue Hospital, March 4, 1891.

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FATIGUE AND DISEASE.

THE part played by fatigue in the production of disease has received much attention of late. The earlier studies of Carrieu, Peter, Fournol, Revilliod, and Rendon have been continued by other observers, notably Dr. A. B. Marfan, whose exhaustive paper upon the morbid effects of overwork appeared in the *Gazette des hôpitaux* for January 17, 1891.

The amount of work or its kind has intrinsically but little to do with overwork. Some races seem to possess a special power of resistance to fatigue. The negroes in the cotton-fields are not overworked, neither are the Chinese, though it is said that they toil more steadily and terribly than the people of any other nation. Age, race, cosmic conditions, absence of proper training and force of habit, non-congenial pursuits, sudden change of vocation, and want of sleep and recreation, are all factors in overwork. All work and no play does more than produce pure simple dullness; it starts morbid processes induced by poisons generated within the organism itself. The deviations from health caused in this way are usually expressed by heart disturbances and typhoid conditions. Sporadic fevers, known as abortive typhoid, ephemeral, gastro-intestinal, bilious, or malarial, and so-called subacute rheumatism, are often of this nature. And various cardiac abnormities, such as heart strain and forced or irritable heart, are often, especially among athletes, due to fatigue or strain.

The fevers of overwork are of three kinds or degrees. The first is simply a typhoid state, without rise of temperature, purely dynamic, and soon relieved by rest. The second has for its cause more prolonged fatigue without regular periods of repose. This is the acute form, a true fever, with rise of temperature and alteration of the liquids of the body. The third is a typical typhoidal condition, with transient or permanent lesions. It is the result of arduous effort, such as forced marching, night watching followed by daily toil, the cramming process in superficial schools, or a sudden direction of energy into unaccustomed channels. There are changes in the solid as well as the fluid portions of the economy. The heart and blood-vessels, the kidneys (as in infectious disease), and the spinal cord are the organs most likely to be affected. According to Rendon, this is the grave form of fever due to fatigue, the term subacute being reserved for cases where death from exhaustion takes place too soon for the development of the foregoing phenomena.

Of this, the soldier who fell dead after announcing the victory of Marathon to the Athenians was an example. In Algeria, Bertherand noted two deaths occurring in native runners the instant they reached the goal. Poisoning was suspected, but the autopsy revealed nothing beyond fœtid matters in the stomach and intestine, very dark blood in all the vessels, extreme softening and a dark tint of many muscles that had become infected, and extravasations of blood into the mucous membranes and the skin. Cadaveric rigidity and putrefaction set in rapidly. This sudden death from overexertion is really self-intoxication by carbon dioxide, which is formed more rapidly than the lungs can exhale it. Insolation and "cold strokes" are also examples of subacute disease from overwork. In other words, intense heat and severe cold are agents that quickly transform otherwise normal efforts into sources of disaster.

An explanation of the morbid effects of fatigue is not far to seek. Work produces waste. Within the organism the results of muscular activity, as Peter has pointed out in this connection, are creatine, creatinine, lactic acid, and certain nitrogenized uncrystallizable extractives. Brain at work produces leucine, cholesterin, etc. Retained products of dissimilation, prejudicial to function and to life, clog the system when the emunctories are oppressed or fatigued. The entire nutrition suffers, owing to the insufficiency of oxygen due to this accumulation of waste. Blood thus charged injected into animals has caused all the symptoms of overexertion and even death. The flesh of animals hunted or driven to death is often poisonous to those who consume it.

Overwork, then, alters normal physiological and chemical processes. It paves the way for the germs of infectious disease. It prepares the soil necessary to the formation of noxious organic compounds. Innocuous microbes may develop pathogenic properties. If the researches of Rodet and Roux, of Lyons, are confirmed, and Eberth's bacillus is proved to be but a modification of the *Bacillus coli communis*, the exclusive theory of contaminated water infection as the cause of enteric fever is shaken. The effect of poisons that it generated within the system has been slightly overlooked in the search for specific germs.

MINOR PARAGRAPHS.

THE PHYSIOLOGICAL EFFECT OF THE JUICE OF THE THYREOID GLAND.

IN the *Comptes rendus de la Société de biologie* for April 24th we find an account of M. Gley's intravenous injections of the juice obtained from triturating thyreoid glands. As is known, extirpation of the thyreoid gland in dogs causes grave convulsive attacks, which are soon followed by death. Healthy dogs, with their thyreoids intact, present nothing remarkable after the injection of the juice mentioned; those, however, that have just undergone extirpation of the thyreoid gland and are beginning to be the subjects of general convulsions, are very much relieved and in most cases saved from death by having an intravenous injection of the juice obtained from both lobes of the thyreoid. It is stated that even within twenty-four hours after the extirpation of the gland, when the animal begins to show a stumbling gait and even incapability of maintaining its upright attitude, when there are violent and incessant contractions of all the muscles, with marked polypnœa, etc., an injection of the juice of the thyreoid causes a favorable change within a few minutes. The intensely convulsive fits begin to diminish and soon disappear completely, the respirations resume their norma rhythm, the paralysis of the extremities disappears, etc. As a rule, the unfortunate train of symptoms reappears the next day after the injection, but a second injection aborts them very readily. The injections were found to be inefficacious only when given too long after the extirpation of the thyreoid gland; otherwise, they acted always very successfully. The author has in his possession graphic demonstrations of the change from the abnormal to the normal rhythm of respirations and muscular contractions that followed the injections. The same results are obtained from the juice of glands of animals of a different species. G. Vassale is mentioned as having anticipated the author by similar experiments on eight dogs.

CHAULMOOGRA OIL IN LEPROSY.

Dr. Bergé, of the New Orleans Lazaretto, has reported three cases of leprosy that have responded favorably to moderate doses of oleum gynocardiæ. The October issue of the *New Orleans Medical and Surgical Journal* contains full particulars of the symptoms and their amelioration in each case. Dr. Bergé is so well pleased with the results of the treatment that he expresses the opinion that a specific remedy for the tubercular form of leprosy has been found in this oil. The improvement was great in all three cases, but it was especially noteworthy in one of his cases marked by the leonine aspect and by the œdematous extremities being so large that the feet were compared to "small watermelons." The patient began the use of the drug under protest, but it was not long before he became convinced that it was of benefit, and he became as desirous of its administration as he had before been averse to it. The sudorific effects were extreme in this case, although the dosage as reported was small and not such as to lead to cumulative action.. A vesicular eruption, with sudamina, lasted for several days, after which desquamation took place, removing with the effete cuticle numerous small patches of pigmented skin. The leonine aspect was greatly reduced in consequence of a diminution in the tubercular hyperplasia of the face and a marked subsidence of cutaneous thickening and of the facial furrows caused by those hypertrophies. The oil was used externally to a small extent, but not sufficiently to lead to any positive opinions as to the utility of that method of employing it. Dr. Bergé believes that the action of the drug is especially potent in the healing of the ulcerous state of the leprous tubercle, and he dwells with much satisfaction on the relief that one hopeless subject obtained whose extremities seemed swollen to the point of bursting and gangrene—accidents which would have been fatal to the patient in the condition in which he then was, but which were forestalled as soon as the man came thoroughly under the influence of the drug.

EPHEDRA AS A REMEDY FOR RHEUMATISM.

Dr. Betchine, of St. Petersburg, has reported in the *Revue de thérapeutique* his studies upon the antirrheumatic properties of *Ephedra vulgaris*, or *Ephedra distachya*. The plant is widely distributed over Russia, and has long enjoyed a great reputation among the peasants as an antirrheumatic and antisyphilitic remedy. Dr. Betchine has employed a decoction of four grammes of the powdered bark and root in twenty grammes of water, the dose of which is a dessertspoonful every two hours. The remedy appears to be particularly useful in acute articular and muscular rheumatism. In from twenty-four to forty-eight hours the pain is relieved, the temperature is reduced, and the pulse and respiration are quieted. In about eight or ten days the patient may be said to be cured, and the pericarditis that sometimes exists disappears with the other rheumatic manifestations. Chronic rheumatism is not so favorably influenced by the drug, and the author recommends it only in cases accompanied with more or less fever. The remedy possesses laxative, diuretic, and diaphoretic properties, to which its favorable influence upon this disease may be attributed. Professor Nagai, of Tokio, has isolated the alkaloid ephedrine from *Ephedra vulgaris*. This, injected into dogs and cats, produces general convulsions, mydriasis, and exophthalmia. It is an efficient mydriatic, but has not yet been put to practical use.

PARTIAL JAUNDICE.

Under this title Mr. Thomas MacHardy, of Huntly, N. B., describes, in the *British Medical Journal* for October 31st, the case of an infant, five weeks old, who was observed to have become jaundiced in the upper part of the body. The discoloration ended abruptly at the level of the umbilicus by a well-marked line encircling the trunk. The child appeared healthy in every way, and bile is said to have been present in both its stools and its urine. Its mother had had frequent attacks of jaundice, and had invariably had it with her labors, but always general in its manifestation and not accompanied by constitutional disturbance.

PYOSALPINX IN A CHILD.

In the *Lancet* for November 14th Mr. A. H. Cheatle reports the case of a child, a year and nine months old, that died of tubercular disease affecting the lungs, the liver, the kidney, and the peritonæum, especially that of the pelvis. There was an abscess of the left broad ligament, and both Fallopian tubes were found coiled and distended with pus, and one of them seemed to communicate with the abscess. Before death the abdominal wall had been lax and admitted of free examination.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 24, 1891:

DISEASES.	Week ending Nov. 17.		Week ending Nov. 24.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	39	14	39	7
Scarlet fever	134	20	134	18
Cerebro-spinal meningitis	1	2	0	0
Measles	36	4	70	3
Diphtheria	112	39	113	33
Small-pox	0	0	0	0
Erysipelas	0	0	1	0
Varicella	4	0	7	0
Pertussis	9	0	1	3
Mumps	0	0	1	0

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 15 to November 21, 1891:*

Richard, Charles, Captain and Assistant Surgeon, is granted leave of absence for one month.

Wyeth, Marlborough C., Captain and Assistant Surgeon. The leave of absence on surgeon's certificate of disability granted is extended three months, with permission to enter the Army and Navy General Hospital, Hot Springs, Ark.

Gardner, Edwin F., Captain and Assistant Surgeon, is relieved from further duty as attending surgeon and examiner of recruits in New York city.

Society Meetings for the Coming Week:

Tuesday, *December 1st:* New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine;

Buffalo Medical and Surgical Association; Ogdensburgh Medical Association; Medical Societies of the Counties of Herkimer (semi-annual—Herkimer) and Saratoga (Ballston Spa), N. Y.; Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

Wednesday, *December 2d:* Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

Thursday, *December 3d:* New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Boston Medico-Psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

Friday, *December 4th:* Practitioners' Society of New York (private); Baltimore Clinical Society.

Saturday, *December 5th:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Answers to Correspondents:

No. 364.—There was perhaps an erroneous or careless expression in the original. We have now no means of ascertaining, but it seems probable that a cubic centimetre of the solution was meant.

No. 365.—All things considered, we should say Berlin.

No. 366.—You had better write to the author mentioned. You can address him in care of this journal.

Proceedings of Societies.

SOCIETY OF THE ALUMNI OF BELLEVUE HOSPITAL.

Meeting of March 4, 1891.

The President, Dr. Charles Phelps, in the Chair.

Increase in Stature during Extension.—Dr. R. H. Sayre presented two boys with rotary lateral curvature, who showed a remarkable increase in stature in the course of a few weeks of treatment by extension with the application of a plaster-of-Paris jacket. One boy had increased two inches and a quarter in height in three weeks, the jacket only increasing the height about an eighth of an inch.

A Case of Mycosis Intestinalis, or Anthrax.—Dr. F. H. Wiggin presented a written report. (See page 605.)

Dr. H. M. Biggs suggested that as bacterial emboli were found in the mesenteric artery in such cases, this was probably the cause of the ulceration; for it was too rapid to have been produced in any other way.

Some Unique Cases of Vesical Surgery occurring in General Surgical Practice.—Dr. Frederic S. Dennis presented a paper on this subject. (See page 601.)

Dr. J. B. Gibbs wished to know the amount of contraction of the urethra in the case of rupture of the urethra, for this was usually a persistent and troublesome feature in such cases. The second case in the paper reminded him of a boy whom he had just examined. Under ether, a full-sized sound passed without difficulty and a searcher detected no stone. Although no stone could be proved to be present, he thought if a fortnight of palliative treatment proved of no avail it would be advisable to do an exploratory cystotomy. One of the author's cases had reminded him of a case which had puzzled him considerably. A child had been subjected to perineal cystotomy in order to cure a cystitis by drainage. Relief had been complete so long as drainage was continued, but two months after this had been discontinued all the symptoms had returned, and a second operation had been performed and a stone had been removed. At the end of about a year a third operation had been required, and had been performed both above the pubes and through the perinæum, and another stone had been removed. This stone had been an inch in diameter, sacculated, and was situated behind the prostate. He would like to know whether the condition was due to a local or constitutional cause.

Dr. Dennis said that the patient with the ruptured urethra had told him a few days ago that there was no trouble with his urethra, but he had not ascertained its caliber. The case of the child with the recurrent cystitis after cystotomy appeared to be unique, and he had no explanation to offer.

Dr. J. W. S. Gouley said that he had been most interested in the case of calculi with blood-clots as nuclei. They were of rather rare occurrence. He was reminded of an operation performed many years ago, in which he had assisted Dr. Hewitt. In this case a blood-clot had formed the nucleus, and it was further of interest because the suprapubic operation had been performed. The ordinary incision had been made above the pubes after drawing off the urine and filling the bladder with water with a catheter. The bladder had been opened, and the operator had passed his finger through a small opening at first, and then the water had been drawn off, the incision had been enlarged, the forceps passed, and the stone quickly removed. The bladder had been stitched with silver wires, and the wound had been hermetically sealed. A soft catheter had been left in the bladder for twenty-four hours, after which the urine had been drawn off from time to time. He had made an excellent recovery. This was the first suprapubic cystotomy for stone which the speaker had witnessed. The perineal counter-opening, which had been done so much by French surgeons during the great craze for the suprapubic operation, was avoided. The craze for this operation was greater then than now, but it had died away, and it would do so again. He was very much in favor of the suprapubic cystotomy when it was clearly indicated, but he saw very few cases in which he thought it was indicated. It was now performed too frequently, and in cases where the stone could be crushed, and also in children where the stone could be readily removed by the perineal operation with dilatation of the prostatic urethra. If this was not sufficient, it was certainly safer to crush the stone into several pieces and remove these through the perineal wound than to perform the suprapubic operation, which he considered a very serious operation. The fact that it was so easily performed was one of its worst features. It was more serious than the median, and in the majority of cases even than the lateral operation.

He had never met with such a case in a child as that mentioned by Dr. Gibbs, but he had seen it in the adult. About twenty years ago he had had a patient in Bellevue Hospital upon whom he had performed lithotrity twenty-five or thirty times in the course of three or four months. There had been no stones over half an inch in diameter, yet within five or six days the operation had to be repeated. The patient had been subjected to lithotomy some months before. About eight or nine months after the last crushing the patient had died, and at least one dozen small calculi had been found in each of the ureters, and the pelves of both kidneys had been filled with stones, mostly composed of the urate of soda. The patient had not died from the stones directly. There had been sufficient prostatic enlargement to cause stagnation of urine, and enough explosive effort to produce a condition by no means infrequent in old men—*i. e.*, small, multiple sacs, some with narrow orifices, plunging between the bundles of muscular fibers of the bladder, and reaching very closely to the peritoneal surface.

One of these sacs, which had become filled with pus, had ulcerated its way into the peritonæum, and the patient had died of peritonitis.

Dr. McAlpin exhibited, under the microscope, a preparation of tubercle bacilli obtained from a small nodule found in the sputum of a patient who was undergoing the Koch treatment. It was almost a pure cultivation of the bacilli.

Dr. Biggs said that he had examined a great many specimens of phthisical sputum, but he had never seen anything approaching this. The specimen was interesting and significant in view of the statements which had been made concerning the influence of the "lymph" in increasing the number of bacilli.

Meeting of June 3, 1891.

The President, Dr. Charles Phelps, in the Chair.

A Case of Locked Jaw.—Dr. R. H. Sayre presented such a case. He said that when the case had been shown about a year ago, the teeth could only be separated sufficiently to barely admit a knife-blade. The treatment, which had consisted in the use of a mouth gag for prying apart the jaws, had been irregular, long intervals having elapsed in which the child had not been brought to him at all. The difficulties in the case had been still further increased by the fact that the patient's teeth were much decayed, and did not afford a proper point of pressure for the instrument. The instrument employed had been devised by Dr. Hubbard, and had already been presented to the society.

Dr. L. W. Hubbard said that the case in which he had first used this instrument had been one of ankylosis of the jaw, occurring as a sequela of parotid abscess. The case had received no treatment for a year previous to coming to him. This had been two years ago, and although during the past year the treatment had been carried on only at home, he had succeeded in separating the teeth sufficiently to allow the patient to eat all ordinary articles of food.

A Case of Congenital Malformation of the Elbows, Wrists, and Hands, with Non-rotation of the Humeri.—Dr. R. H. Sayre presented a case of this kind. The elbow joint, instead of presenting to the front, presented more to the side and back, as in quadrupeds. The child had been sent to him as a case of ankylosis, but during the past three weeks he had been able by manipulation to get the child to scratch the head with one hand and to bring the other well toward the mouth. The flexors of the arm and extensors of the forearm did not react to the faradaic current, although they responded to the child's will; but there was a hyperexcitability of the triceps and of the flexors of the carpus. There were no nails on the second and third fingers of the right hand, and on the forefinger of the left. There seemed also to be an absence of some of the bones of the left carpus. He could not say positively what was the cause of this condition.

Dr. L. W. Hubbard thought the case the result of pressure or of some deficiency of the nervous system. The treatment so far was very encouraging, and he thought it would lead to an excellent result.

Excision of the Knee for Extensive Disease.—Dr. R. H. Sayre presented a young woman upon whom he had performed excision of the knee, and also exhibited portions of the femur, tibia, and patella, which had been removed from her about a year ago. During childhood there had been an inflammation of the spinal cord, followed by an osteitis of the left hip. Sinuses had formed and dead bone had been removed, but she had recovered perfectly from this trouble. Subsequently there had been an inflammation of the right knee, accompanied by what had appeared from the history to be a general neuritis, and ultimately resulting in ankylosis of the leg at a right angle. When she had first come to him she was walking on a crutch, and had been doing so for about seven years previous to this time. After about eighteen months of treatment by massage and galvanism she had been able, with the help of a splint and high shoe, to walk long distances without discomfort, and, although anxious to have the limb straightened, this had not been advised on the ground that it might start up the old disease of the bone. She had persisted, however, in her demands for the operation, and the speaker, not being aware that the disease was as extensive as it proved to be, had finally consented to excise the joint. He had found the center of the bone the seat of very extensive caseous degeneration, and the patella had been firmly adherent. There had been a large fatty mass in the head of the tibia, and, when the diseased portions had been scraped away, a cavity about two inches in depth had been left in each bone. Simple drainage of the cavities would not have allowed of sufficient support of the parts, so that the operator had been confronted with the alternative of performing amputation or of endeavoring to obtain union by blood-clot. He had adopted the latter plan, and, as the shell of bone would not admit of using wires, he had simply approximated the two sawn surfaces, dressed the wound with dry bichloride gauze, and put the limb up in plaster of Paris before removing the Esmarch bandage. After several weeks there had been found to be fair union. She had been going around for a number of months without any splint and without any pain. He did not consider the knee tubercular, but he was unable to thoroughly understand the exact nature of the case, and the neurologists had been equally unable to throw much light upon the case. She had had various peculiar pains in the knee and ankle, then an attack of "shingles." At times there had been a very curious contraction of the hands, and slight exertion or overwork gave rise to very extraordinary nervous phenomena. The condition of the limb on the opposite side, of course, favored its being of a tuberculous nature.

Dr. L. W. Hubbard complimented the speaker on the remarkably fine result he had obtained—one which would be considered excellent even in cases where the disease was much less extensive. He felt confident, however, that such a result would be altogether exceptional in the hands of any surgeon.

Cases of Foreign Bodies in the Alimentary Canal.—Dr. Henry M. Silver presented a report of three such cases. (To be published.)

The President said that while he was house surgeon at Bellevue Hospital an interesting case of this kind had occurred. A man with delirium tremens, who had been admitted to the medical side, had asserted that he had swallowed his teeth, but little attention had been paid to his statement. After several weeks he had died of pericarditis, and the post-mortem examination had shown that three or four teeth and the plate were lodged partly in the œsophagus and partly in the pericardial cavity. Some of the members of the society might also recall a specimen which he had shown informally some time ago. A baby, eight months old, had swallowed a whole safety-pin, which had been open, and had measured about an inch and a quarter by three eighths of an inch. No special line of treatment had been adopted, but at the end of the second day the pin had been passed without difficulty.

Dr. L. B. Bangs said that some years ago a South Carolina friend had come to him saying that his little four-year-old boy had swallowed a horseshoe nail. He had been directed to feed the boy chiefly on sweet potatoes. This had been done for three days, and then a dose of castor oil had been given, after which the foreign body had been passed *per rectum*. Dr. Bangs advocated a more extensive use of the potato treatment in these cases.

Dr. SILVER remarked that his patients had been specially warned not to use cathartics, the idea being to have the foreign body passed naturally while still imbedded in the potato.

An Unusual Case of Appendicitis.—The PRESIDENT said that a little over a year ago he had been asked to see a case of appendicitis with a view to a possible operation. When they arrived at the house they had been astonished to find that the patient had suddenly passed into collapse and was absolutely pulseless. The abdomen had been so tympanitic that but little information could be obtained by examining it, and operation under these circumstances had been of course out of the question. Nevertheless, the patient had rallied, and about three months later, during the speaker's absence from the city, he had called upon Dr. Fluhrer, who had found a tumor in the region of the appendix, and had told the patient of the danger which menaced him. About three weeks ago he had returned to the speaker, and had said that he was suffering greatly from pain, which was increased by any slight indiscretion in diet. He had become greatly emaciated. A tumor had been found, but it had been situated more in the lumbar than in the iliac region, and had appeared to be perinephritic. The speaker could not detect fluctuation, although one distinguished surgeon, who also examined the case, had been positive that he detected it. Operation had been advised, and about a week later, when it was about to be performed, no tumor could be found, although there was still considerable tenderness in the right iliac region. The man's general condition had seemed to indicate so clearly the existence of some pus formation that the lumbar incision had been made, and the region of the cæcum explored with the finger. No trace of inflammation could be found, so the wound had been drained. On dressing the wound three days later, the drainage-tube had been found to be filled with extremely thick, fœtid pus. There had evidently been a collection of pus deep down in the cæcal region. Two days after this he had said that he had felt a passage of gas through the tube under the dressings, and two days after this, after an enema of about a quart of soap and water, a considerable quantity of this had come through the drainage-tube. The speaker had advised the administration of another injection containing some coloring matter, but, before this could be done, some fæcal matter had escaped through the wound, thus proving the existence of a perforation. During the past ten days there had been no discharge of fæcal matter, and the pus was quite scanty. The drainage-tube had not been disturbed, the bowels were moving regularly, there was no elevation of temperature, and the patient's general condition was rapidly improving.

The perforation must have occurred at the time of the collapse, but the general peritoneal cavity had escaped. The peculiar features connected with the tumor might be explained on the supposition that in consequence of the local irritation there might have been sufficient œdema of the cellular tissue to lead to the error regarding the existence of fluctuation.

NEW YORK STATE MEDICAL ASSOCIATION.

Eighth Annual Meeting, held at the Mott Memorial Hall, New York, October 28, 29, and 30, 1891.

The President, Dr. STEPHEN SMITH, of New York, in the Chair.

(*Concluded from page 580.*)

Rupture of the Diaphragm.—Dr. S. T. CLARK, of Niagara County, reported a case of rupture of the diaphragm at the antero-posterior angle of the œsophageal orifice, with consequent laceration of that branch of the phrenic artery which passes through the diaphragm at that point and disturbance of the accompanying phrenic nerve.

The case was presented for diagnosis, and several of the fellows of the association concurred in the foregoing diagnosis. The patient, while lifting a heavy weight, was seized with a sharp pain, which was referred to the end of the ensiform cartilage. The pain was quite transient, and was followed by nausea and pallor and great prostration. A small clot of blood was probably formed at this time, which accounted for the temporary amelioration in the symptoms. Two hours later, when the stomach was fully distended with food and the conical portion of the œsophagus dilated by the disengaged gases, the lacerated surfaces were more fully separated, producing a corresponding augmentation of the pallor, nausea, along with diaphoresis, showing a large increase in the hæmorrhage. On the night of the 24th of June, under almost the same circumstances, the same symptoms appeared with increased severity. On the 25th the accumulated clots were so considerable as to fill the anterior portion of the middle mediastinum and to crowd the heart an inch and a half to the left, this deflection being due to the anatomical fact that the diaphragm is three fourths of an inch lower on the left than on the right side. The accumulated blood not only changed the position of the heart but fettered the apex impulse. During the night of July 1st these clots had become so far absorbed as to release the organ and to allow it to give forth its normal sounds. A slight pericardial friction sound was heard at one time, and this was interpreted as meaning that there was partial organization of the clot at the apex, with beginning adhesions at that point.

Alienism.—In opening the discussion on this subject, Dr. JUDSON B. ANDREWS, of Erie County, dealt with the bearing upon insanity of heredity and environment. He thought the drift of thought was toward giving heredity the position of a direct and exciting rather than a predisposing cause. To accept this definition was to make life the result of an irresistible fate. It had been calculated that in the United States, in a population of one hundred thousand, there would be two hundred insane people, of whom fifty would have an insane ancestry. There was a great tendency to exaggerate the force of heredity. Heredity alone did not produce insanity; its influence was to be found in a greater liability in the individual to become insane under some exciting cause existing in the environment. The author strenuously opposed the view generally held by laymen that because insanity had existed in the family of a patient there was little or no hope for the recovery of that patient. We might confidently assure those having an insane ancestry that there was no fatality about heredity, as it could only become a factor in the production of insanity under conditions favoring its development, and these were any conditions deteriorating the general health, and particularly the vigor and integrity of the nervous system. These influences were due to environment and not to heredity. Environment, therefore, might be potent to intensify or to oppose heredity. While heredity was most powerful at the adolescent period of life, there was also at this time the greatest mobility and the readiest control, as the environment was largely a matter of choice. In mature life there was much more danger of the development of insanity; but then there was an opportunity for the individual to so live as to overcome the heredity. In considering the question of marriage with reference to the avoidance of the dangers of heredity, the selection of a mate was of vital moment, and the physician was by duty bound to give advice on this subject in accordance with his knowledge, without regard to whether his patient was likely to follow his advice.

The Relations of Traumatism and Shock to Insanity.—Dr. H. M. HURD, of Maryland, read a paper on this subject. The far-reaching character of heat-stroke as a cause of insanity could not, in his opinion, be overestimated. These cases showed the same suspiciousness and apprehension as cases in which the insanity was due to traumatism. Shock sometimes produced an instability, rendering the patient emotional and lacking in will-power. These cases yielded the richest harvest to the hypnotizer and mind curer. Injuries to the head during childhood often lessened the brain resistance, and rendered the subjects liable to the development of mental disease at the physiological epochs of life, particularly puberty. The most characteristic features of traumatic insanity were delusions of suspicion and apprehension, and sometimes a tendency to vice and crime. With few exceptions the prognosis was bad.

Dr. P. M. Wise, of St. Lawrence County, spoke of the relation of bodily diseases and senility to insanity. He quoted statistics to show that bodily diseases contributed from twelve to fourteen per cent. of the cases in both sexes. Pregnancy and the puerperal state contributed nine or ten per cent. of the female cases. Post-febrile insanities formed even a smaller proportion than formerly, owing to the abandonment of depletive treatment. Where the insane diathesis existed the patient required extreme care during convalescence to prevent the development of an incurable form of insanity. Heart disease, on account of the attendant anæmia, was often a direct physical cause of insanity, quite independent of other predisposing causes. The multiform traumatic causes, the author thought, furnished only a small ætiological factor, and the same was true of sunstroke. For some years past epidemic influenza had been assigned as a cause for melancholia, and the great mental depression frequently accompanying it almost marked it as an epidemic nervous disease. It had probably been potent as a cause of insanity and of shattered nervous systems. The author did not consider that the popular belief that diseases of the sexual organs bore a very close relation to insanity was well founded. In his opinion, there was no uterine psychology, and in a somewhat extensive experience with gynæcologists in insane hospitals he had never seen a recovery from insanity even remotely due to gynæcological treatment, and, further, he believed that in a few cases it had actually interfered with recovery. The physiological epochs of life—pubescence, adolescence, and the climacteric—presented fruitful periods for the unbalancing of unstable brains. Much might be said about the importance of harmony of development of the body and mind during the period of pubescence. The child-bearing processes acted as frequent exciting causes in women, most often after the puerperium, and next in frequency, during lactation. It was rare, however, for insanity to occur under these circumstances without some pre-existing constitutional tendency to it, either inherited, or acquired by a life of poverty and overwork. Protracted lactation in neurotic women was a perilous proceeding and might result in life-long mental alienation. From a psycho, logical standpoint, there was a normal pathology of old age. The author deprecated the growing tendency to certify as insane cases presenting this so-called normal pathology. This was one class of cases which had aided in increasing the aggregate number of insane under care. We must look to the medical profession in this matter to protect the interests of the State.

The bearing of syphilis and intemperance upon the subject under discussion was considered by Dr. G. Alder Blumer, of Oneida County. The author quoted statistics from various countries to show that, with the exception of France, the percentage of cases of general paresis in which syphilis existed as an antecedent condition was from sixty to eighty. In regard to the proportion of other forms of insanity than general paresis due to syphilis, the statistics of the Utica Asylum showed that the proportion of syphilitics to the total number admitted was $\frac{52}{100}$ per cent. This insignificant percentage was very striking when considered in connection with the statistics regarding general paresis.

Those having much experience with the insane would not deny that one of the most common causes of insanity was alcoholic excess. It seemed probable that confirmed drunkenness of the parent was as potent as actual mental disease or mental deficiency to predispose his children to the development of insanity; in fact, drunkenness was a transient insanity. Intemperance was often assigned as a cause, when in reality it was only a premonitory symptom. When directly the result of intemperance, it was generally associated with systematized delusions and hallucinations of a persecutory character, which was not apt to be the case where insanity was a symptom of intemperance. Alcohol first excited then paralyzed in succession every nervous center in the body. The author quoted statistics gathered from various sources, but said that the evidence was so conflicting that no definite conclusions could be drawn.

Dr. E. N. Brush, of Pennsylvania, confined his remarks to a consideration of the arrest of development and diseases of infancy.

Tumors of the Orbit and Neighboring Cavities.—Dr. Charles Stedman Bull, of New York County, read an exhaustive paper on this subject.

This was followed by a very humorous but scholarly address on **Biblical Medicine,** by the Rev. William C. Bitting, D. D., of New York city. In this address he presented the results of an exhaustive and complete study of this subject.

Mental Therapeutics.—This was the subject of an entertaining and suggestive paper by Dr. Henry D. Didama, of Onondaga County, who considered many of the cures which have been popular at various times, and deduced from them such lessons as would be of use to the practitioner.

Dr. Fell spoke particularly of the frauds constantly being practiced upon the community by irregular and unscrupulous physicians, and cited a case coming under his own observation in which a homœopathic practitioner was treating a child for pneumonia while the child was allowed to be running around out of doors; and this, too, when the father was a very intelligent and successful merchant. If such people could be easily duped, it was little wonder that all sorts of "pathies" flourished.

The Address in Gynæcology.—This was delivered by Dr. A. Palmer Dudley, of New York County, who, after reviewing the advances recently made, discussed the treatment of fæcal fistula following laparotomy. Prophylaxis was of the greatest importance, most cases being preventable by careful and deliberate methods of operating. Absolute rest in bed was requisite for the successful treatment of such fistulæ, together with a diet which produced a minimum quantity of gas. Closure of the fistula from the bottom could be promoted by passing daily through the fistula a piece of marine lint soaked with balsam of Peru. Should the usual methods fail, a secondary laparotomy must be resorted to.

Puerperal Eclampsia associated with the Uric-acid Diathesis.—Dr. George E. Fell, of Erie County, related the history of a case, and raised the question, What had this diathesis to do with the eclampsia? He detailed some experiments of Semmola's, going to show that in animals this condition might give rise to convulsions. He also cited another case of a woman who, in the early months of pregnancy, began to fail rapidly in health, coincident with the appearance of symptoms of the uric-acid diathesis, but who was rapidly restored to health by alkaline treatment associated with daily irrigation of the bladder. From this he concluded that still another reason had been found for the physician carefully watching over his patients during pregnancy.

Embolism of the Pulmonary Artery.—Dr. FELL reported a case of this nature successfully treated by the persistent use of oxygen inhalations. At the time the patient was first seen by Dr. Fell she was in a critical state, and thought to be dying. The dyspnœa, which was most distressing, was instantly relieved by the first inhalation of oxygen, and every attempt to discontinue these inhalations was followed by a return of the dyspnœa and cyanosis. It was found necessary to use the oxygen continuously for four days, the total quantity of oxygen gas used being nearly twelve thousand gallons. The object of this treatment was to keep up respiration and oxygenation for a time, with the hope that the embolism would be absorbed and the obstruction thus removed. This had occurred, and the patient eventually recovered.

Reports on the Progress of Medicine.

GENERAL SURGERY.

By MATTHIAS L. FOSTER, M. D.

The Treatment of Hernia by Abdominal Section.—Mr. Lawson Tait (*Brit. Med. Jour.*, Sept. 26, 1891) advocates strongly the adoption of abdominal section for the reduction and radical cure of strangulated and incarcerated herniæ. The arguments which he presents in favor of this operation are that a perfect and accurate diagnosis will be made as soon as the finger in the abdomen reaches the internal aperture of the canal through which the protrusion is supposed to be made, and if the case proves to be one where hernia is not present, no harm will be done if the operation is properly carried out. If hernia is present, replacement of the viscera can be more safely effected by traction from within than by pressure from without, and if traction is gentle and cautious it is certain to be effectual. In a chronic case where strong adhesions exist, the sac may have to be opened in order to undo these adhesions. Ordinary adhesions are, he says, very easily undone by traction. The pieces of omentum which have been removed by traction from their sites of adhesion bleed, but the sites themselves do not, because their vascular supply is from the omentum; so it will only be necessary to examine the ends of the piece of omentum which has been torn out of the sac and to arrest bleeding to be sure that everything is satisfactorily accomplished. If a secondary opening of the sac is found necessary, he considers the self-evident objection of having two openings instead of one of very little weight, because the second small incision, if properly made and secured, can not be the seat of subsequent protrusion.

If this secondary opening proves to be necessary for removing adhesions, the reduction will be accomplished without enlargement of the tendinous aperture and the consequent diminution of support; removal of the hernial sac will not be necessary, and any objectionable contents of the sac may be cleared out and the condition of the gut accurately ascertained. Should it be necessary to make an artificial anus, the proper place will be the central incision.

By means of the abdominal section non-discovery of double strangulations and strangulation by the returned neck of the sac will be rendered impossible, and mistaken and incomplete operations will be obviated.

For the radical cure he advocates the following method: "Two common glover's needles armed with one piece of salmon silkworm gut are fastened in some convenient needle-holder at a very slight angle to one another, so that their points completely coincide, and can be made to enter through one hole in the skin. The left forefinger covers or occupies the inner aperture of the sac; the needles are made to enter from without, and are then separated. The outer needle is then made to dip deeply into the external column of the ring, and the inner needle similarly into the inner column. The needles are then pulled out through the central incision, and as many sutures as may be thought desirable are inserted in this way. When the insertion of the stitches is completed, they can be tied from within and cut short. The abdominal wound is then closed properly and the operation is over."

Mr. Tait states that he does not put this operation forward for the purpose of completely replacing the direct method, but maintains that it is applicable in a very large number of cases, and that in its uniform adaptability for the combination of the relief of strangulation and the radical cure of hernia will be found the chief argument for its adoption as far as it can be extended.

He has in this manner cured a large number of inguinal and crural hernias in women, but has never operated on a man, and suggests that in dealing with inguinal hernia in the male some device would require to be introduced to protect the spermatic cord.

The discussion on this paper was quite conservative in its tone, the danger of rupturing the gut and of introducing the irritating contents of the sac into the peritoneal cavity being particularly dwelt upon.

Rupture of the Bladder.—Cabot suggests the following rules to govern the treatment in cases of rupture of the bladder (*Bost. Med. and Surg. Jour.*, Oct. 15, 1891):

1. When an intraperitoneal rupture is made out, an immediate laparotomy with suture of the bladder wound and subsequent drainage of the bladder should be done.

2. When a reasonable doubt exists as to whether the rupture is intraperitoneal or not, an immediate laparotomy should be done.

3. If an extra-peritoneal rupture is made out and uncertainty exists as to the direction in which the urine is extravasated, a laparotomy should be done for exploration to ascertain how the drainage may be best placed.

4. In the case of fracture of the pubes, with evidence that urine is extravasated in the prevesical space, an incision should be made in the suprapubic region, a tube should be carried to the bottom of the effusion, and a median or lateral lithotomy should be done for drainage of the bladder.

Exception.—Occasionally, in cases of severe injury with much shock, when a long operation could not be borne, a median lithotomy may be hastily done for drainage, and the opportunity may be taken for exploration of the position of the rent, to serve as a guide for further interference in case the patient rallies sufficiently.

The brief statement of these rules is that laparotomy should be performed in all cases of rupture of the bladder except those which come under Rule 4, and those in which a long operation is contra-indicated by the presence of severe shock.

Tendon Grafts introduced between the widely separated Ends of Divided Tendons.—Dr. Rochet (*Gaz. hebdom. de méd. et de chir.*, June 20, 1891) obtained a very happy result in a case in which the ends of the divided tendons of the superficial and deep flexors of the index finger could not by any means be brought within two centimetres of each other. The proximal and distal ends were exposed in the usual manner. An incision was then made on the palmar surface of the finger at the joint of the phalanges, where the tendon of the profundus passes between the two lips of the tendon of the sublimis, and the tendon of the profundus was divided at this point. The portion of tendon thus cut off was drawn out of its sheath, its upper end sutured to the proximal portions of the tendons of the sublimis and profundus, its lower end to the distal portion of the tendon of the sublimis. The proximal end of the small portion of deep flexor tendon which remained between the point where it pierces the sublimis and its insertion was then sutured to the lateral slips of the sublimis tendon. The patient recovered with good use of the finger.

Pyoctanin in Cancer and Tuberculosis.—At a meeting of the Paris Société de chirurgie (*Semaine méd.; Brit. Med. Jour.*, June 27, 1891) M. Quenu said that he had tried subcutaneous injections of methyl violet in two cases of malignant disease and in two of tuberculosis. In each of the former cases (epithelioma of the base of the tongue extending to the jaw, and recurrent lymphosarcoma) ten injections of a one-to-five-hundred solution were given without any good result. The injections caused central foci of softening, but the superficial part of the tumor was not affected and there was no trace of staining in the glands. He is inclined to think that the methyl colors are not diffusible, and that this is an argument against this method of treatment.

Acute Periostitis of the Femur in Children.—Mr. Owen (*Ann. of Surg.*, June, 1891) reports the case of a boy admitted to the hospital with the lower end of his femur enlarged and very tender, the skin over the part flushed and hot. The axillary temperature was 101·8° F. The history was that of pain near the left knee for ten days. The pain had steadily increased, and two days previously the thigh began to swell, accompanied by a chill. An incision was at once made down to the femur upon its outer side through the space between the ilio-tibial band and the tendon of the biceps, and a large subperiosteal abscess was evacuated. A perfect recovery resulted.

Mr. Owen is very emphatic that treatment in these cases must be prompt. There should be no dallying with lotions, and fluctuations should not be waited for. Delay entails many great dangers—pyæmia, necrosis, chronic suppuration, hectic, albuminoid disease, destruction of the knee joint—while an incision at once down on to the swollen femur, traversing the anatomical space indicated above, is made without danger or difficulty.

Early Operation in Pott's Disease of the Spine.—Chipault (*Rev. de chir.*, July, 1891) reports four cases in which operative procedure was instituted at an early stage of the disease. In one case Treves's operation was performed for disease of the bodies of the lumbar vertebræ, extending to the left so as to compress the roots of the sciatic nerve at the level of the intra-vertebral foramina. It was done before any cold abscess had developed. A sequestrum was found on the front of the body of the fourth lumbar vertebra, with tubercular granulations about it. The aorta could be felt in front of the cavity. The pain and lordosis disappeared after the fifth day and a good recovery followed.

In the remaining three cases the laminæ were cut away for disease in the bodies of the vertebræ, any ridges formed by the collapsing bodies were removed, the tubercular cavities cleared out, and subsequent drainage secured. In two of these cases very distinct improvement was obtained.

He urges two points of importance in the performance of this operation: First, that the laminæ must be cut away down to the intervertebral foramina; second, that after the cord has been exposed it must be relaxed by extension of the spine—*i. e.*, by placing cushions under the patient above and below the seat of curvature, so that the cord may be drawn to one side and the vertebral bodies may be made accessible.

Erysipelas.—Jordan (*Beilage z. Ctrlbl. f. Chir.*, No. 26, 1891) remarks that the specificity of Fehleisen's *Erysipelcoccus* has been of late more and more questioned, and its identity with the *Streptococcus pyogenes* is probable. He has studied two cases carefully with reference to this question, and has drawn from his observations two conclusions:

1. Erysipelas is ætiologically not a specific disease; as a rule, it is caused by the *Streptococcus pyogenes*, but may be provoked also by the *Staphylococcus pyogenes aureus.*

2. The ætiological factor of erysipelas travels most probably in the blood-vessels. The pyæmia which develops on the accession of erysipelas is primary, not due to a mixed infection.

Arterio-venous Aneurysm of the Carotid and of the Cavernous Sinus.—Nissen reported the following case before the twentieth congress of the Deutsche Gesellschaft für Chirurgie (*Beilage z. Ctrlbl. f. Chir.*, 1891, No. 26): The patient was wounded in the region of the right upper eyelid with the prong of a potato-fork. This injury was followed by swelling and extravasation of blood into the eyelids, with prominence of the eyeballs, headache, and vomiting. Seven weeks later prominence of the other eye was noticed. Two months after the injury there was present bilateral exophthalmus, the right eye being the more prominent; the conjunctival and corneal vessels were enlarged and congested; there was in the right eye a choked disc, in the left enlargement of the retinal veins; there was paralysis of both sixth nerves; a strong systolic bruit could be heard over the whole head, but particularly loud in the region of the right eye, which could be caused to nearly disappear by digital compression of both carotids. No pulsation or thrill was observed in the right eye. From these signs the diagnosis of a rupture of the carotid artery into the cavernous sinus was diagnosticated.

The right common carotid artery was tied, and then strong compression, lasting each time for one minute, was put on the left common carotid artery and continued for two weeks. At the end of that time the bruit had almost disappeared. In seven weeks it had quite gone; the exophthalmus of the left had disappeared, of the right but little remained; the left sixth nerve had quite regained its functions, the right was still a little affected; the left eye was normal, the right had a slight amount of optic neuritis still present.

In the discussion Wölfler stated that he had a case four years before of pulsating exophthalmus in a woman aged forty, which was cured in eight days by methodical compression of the carotid.

Spontaneous Luxation of the Hip Joint after Gonorrhœal Coxitis.—Karewski records the following interesting case (*Ctrlbl. f. Chir.*, No. 38, 1891): A woman, forty-one years old, after an attack of gonorrhœa was seized with great pain in the left hip, and was treated with poultices, powders, and rest. Finally the thigh became flexed, the knee rotated outward and abducted. Six months later she came under the observation of Dr. Karewski, who found the left lower limb two inches shorter than the opposite one, the trochanter much elevated, and the soft parts wasted. Motion was so painful that the patient had to be anæsthetized for further examination, and it was then found that the head of the femur had been dislocated from the acetabulum. The diagnosis was thus made of a spontaneous luxation resulting from an acute monarthritis, due to great effusion into the joint and the faulty position in which the limb had been allowed to remain.

Reposition of the head of the bone was impossible, and no improvement could be expected from extension, so excision was performed. The head of the femur was found dislocated beyond the upper margin of the acetabulum, the ligamentum teres was gone, the acetabular cavity was filled with a mass of succulent connective tissue, and most of the articular cartilage was destroyed. The patient made a good recovery.

This case emphasizes the remarks with which Karewski commences his paper, which are to the effect that usually in gonorrhœal affections of joints the effusion is speedily absorbed and all traces of disorder are removed, but sometimes very grave articular changes result. The acute inflammation may be followed by fibrous ankylosis, or suppuration and disorganization of the joint may occur.

The Initial Seats of Neoplasms and their Relative Frequency.—Williams (*Ann. of Surg.*, October, 1891) has made an exhaustive analysis of 14,480 primary neoplasms of all kinds consecutively under treatment during the past twenty years in four of the large London hospitals. Of this number he finds that 10,409 were of archiblastic (epithelial) and 4,071 of parablastic (connective tissue) origin; 64 per cent. malignant and 36 per cent. non-malignant. Of the malignant neoplasms, 54·5 per cent. originated from the archiblast, 9·5 per cent. from the parablast. Of the non-malignant, 17·5 per cent. were from the archiblast (including cysts), and 18·5 per cent. from the parablast. Stated in another way, 54·5 per cent. of all new growths were cancers, 9·4 per cent. sarcomas, 24·7 per cent. non-malignant neoplasms, and 11·4 per cent. cysts.

Regarding the relative frequency of the occurrence of neoplasms in various organs, he finds nearly one fifth of the total to originate in the uterus and nearly as many more in the breast, while only 2·6 per cent. originated in the stomach. This is most strikingly in contrast to the observations of continental authors, who are almost unanimous in considering the stomach to be the part most frequently attacked, and allot a comparatively insignificant place to the breast. These discrepancies appear so irreconcilable that Mr. Williams suggests that they probably indicate varying proneness of the organs to evolve neoplasms in different countries.

In the breast about two thirds of the tumors were located peripherally, about one third centrally. In 14·7 per cent. of all cases the disease was situated quite outside the mammary gland. The tumor was in the upper part of the breast in one half of the cases where it was situated peripherally, in the lower part and at the axillary side in nearly a quarter each of the cases, and very rarely indeed at the sternal side. The most striking feature about mammary cancer is the rarity with which it arises in the nipple. He states that there is on record but a single well-authenticated case of cutaneous cancer of the female mamma. Of the cancers orginating from the proper tissue of the mammary gland, 97 per cent. were of the acinous type and originated from the glandular acini, and only 3 per cent. of the tubular type, originating from the ducts. Melanotic cancer was so rare in the female breast that not a single example of it was found in 2,397 cases of mammary neoplasm.

In the uterus 95 per cent. of all cancers were found to originate in the glands of the cervix, 3 per cent. from the corpus, and 2 per cent. from the portio vaginalis.

Nearly one half of the initial lesions in the tongue and mouth were found in the edge of the tongue, and less than half as many in the floor of the mouth, near the frænum.

Sarcomata were found in the bones in 36 per cent. of all cases, in the connective tissue in 32 per cent., and in the various organs of the body in 32 per cent. Of the bones, the superior maxilla was most frequently involved; then came the femur, inferior maxilla, humerus, tibia, innominate, skull, scapula, fibula, etc. The immunity of the vertebræ is remarkable.

Of the various organs, sarcoma was most frequently found in the breast, then in the eye, testis, parotid, ovary, etc.

Seventy-three per cent. of all fibromata were found to arise from the uterus.

With regard to the influence of sex, he found the liability of females to neoplasms to be about twice that of males. This great difference is due to the great frequency with which the breast, uterus, and ovary are attacked, the corresponding male organs seldom suffering. In females, 69 per cent. of all neoplasms attack the reproductive organs; in males, only about 11 per cent. If these were omitted, the liability of the male would preponderate very decidedly. Females are much more prone to non-malignant tumors than males. To fibromas they are nine times as prone, to adenomas eight times, to lipomas more than twice, and to papillomas nearly twice. The same preponderance is maintained regarding cysts by the frequency of ovarian cysts. Omitting these, each sex would be about equally liable.

Cancer of the Clitoris.—Merkle (*Ctrlbl. f. Gynäk.*, Oct. 3, 1891) describes a case of cancer of the clitoris which occurred in a woman sixty-one years of age. A tumor as large as an apple was found at the site of the clitoris and an indurated gland as large as a walnut in the left groin. The tumor of the clitoris was beginning to break down, and was removed by means of the thermo cautery. The patient survived the operation for seventy-three days. The tumor proved to be epithelioma of the clitoris, probably primary, and at the autopsy metastatic deposits were found in the lymphatic glands.

Congenital Malformation.—Staveley (*Lancet*, Sept. 26, 1891) records a case of an infant born with an imperforate anus, on account of which left iliac colotomy was performed. The child died two days later, and the autopsy revealed, in addition to the blind termination of the rectum, absence of the great omentum, and of the appendices epiploicæ of the large intestine as well as of the normal longitudinal muscular bands. But the most interesting deformity was in the face, where the nostrils extended upward almost to the inner canthi. The deformity was symmetrical and may be explained developmentally by failure of union of the external nasal processes of the fronto-nasal with the maxillary plates. The lips and palate were normal.

Excision of a Branchial Fistula.—Tricomi, of Pavia, reports (*Riforma med.*; *Brit. Med. Jour. Supplement*, Sept. 26, 1891) a case of branchial fistula in a healthy woman twenty-four years of age. The lower opening was round, two millimetres in diameter, with a brownish margin situated on the right side of the neck, two centimetres and a half above the sterno-clavicular articulation, at the inner edge of the sternal portion of the sterno-mastoid, three centimetres from the middle line in front and eight from the angle of the lower jaw. The pharyngeal opening was found close behind the right tonsil.

Treatment by injection having failed, a filiform bougie was introduced and the fistula dissected out. It was found to run first toward the great cornu of the hyoid bone, to which it was loosely attached, and then into the pharynx, which it entered behind the stylo-mastoid and digastric muscles, the hypoglossal nerve, and lingual artery; these structures were drawn forward and the upper end of the fistula separated from the pharynx, the hole left in the pharyngeal wall being at once closed with two Lembert's sutures. A drainage-tube reaching to the pharyngeal wall was placed in the wound, the deep tissues were united in layers with continuous sutures, and the skin wound with interrupted sutures, both of silk.

The day after the operation the dragging in the neck and pain in the head and shoulder, which the patient had always suffered during the act of deglutition, had disappeared, and in ten days she was discharged completely cured.

Dr. Tricomi says that he has failed to find any previous record of the excision of a complete branchial fistula.

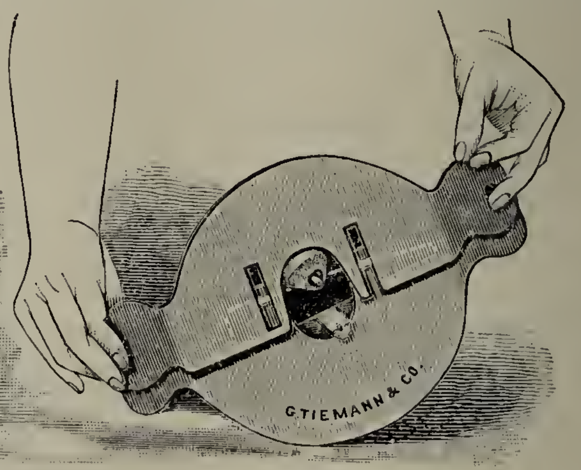
Steel in the Iris for Twenty-seven Years.—Heath reports (*Med. News*, Oct. 10, 1891) a remarkable case in which a piece of steel penetrated the cornea of the eye of a man in 1864, lodged in the iris about midway between the pupil and the outer margin, and did not cause material injury to the eye. Two subsequent attacks of inflammation may have originated from the presence of the foreign body, but he made a good recovery each time and his vision is not affected. It is exceptional for a foreign body to remain so long in the iris and produce so little trouble.

New Inventions, etc.

A FLAP RETRACTOR.

By S. L. McCurdy, M. D.,
DENNISON, OHIO.

In performing over one hundred amputations, one of the most unsatisfactory steps in operating has been to saw the bones off without doing great damage to the soft parts with the saw. The three-tailed bandage, so long in use for retracting the muscles and soft parts back to where the cut is to be made through the bones, has, in my hands at least, served a very imperfect purpose. To do the very best, it was always impossible for me to keep the muscles or the assistant's fingers away from the saw's teeth, or from preventing the saw from catching in and tearing the veteran muslin retractor. The retractor about to be described was made because I had use for it, and is presented because other surgeons may have found the same drawback to the muslin retractor, and also find an equal need for something better. As is shown in the cut, the retractor is made of sheet metal, nickeled, and is composed of two blades with an interosseous tongue. The cut shows the instrument in use for operating through the leg, with the interosseous tongue shown between the bones and the back of the blades of the instrument by dotted lines. The lower or male blade has two projections or pins, which, as is shown in the cut, slide through corresponding slots on the upper or female blade. One of the slots is made open, so that the blades can be opened and closed around a bone in the course of an amputation. The heads of the pins are dovetailed, and a corresponding angle is given the slots, which places them on a plane with the female blade, and out of reach of the saw. In amputating through the femur or humerus, the blades can be closed tightly around the bone, and all soft tissues drawn back to where the bone is to be sawed off, with ease.



As can be seen, the blades are provided with handles which are bent back so as to throw the assistant's fingers back of a line with the saw. When not in use the blades can be taken apart and kept in an aseptic condition. Messrs. George Tiemann & Co., of New York, rendered valuable assistance in perfecting the instrument.

Miscellany.

The Medical Treatment of Cystitis.—At a meeting of the Philadelphia County Medical Society, held on November 11th, Dr. James Tyson read the following paper:

The medical treatment of cystitis does not furnish a very satisfactory chapter in therapeutics. It includes such treatment as the physician is called upon to use supposing the exciting cause—such as a stone or obstruction in the urethra—to have been removed, wherever possible. I say when possible, because the enlarged prostate which is responsible for so many cases of cystitis is, in the vast majority of cases, not removable even in these days of brilliant surgical results. It must also include the treatment of a certain number of cases in which no removable cause is ascertainable, as well as cases where, as with a long previous gonorrhœa, the cause has long since been removed, but has left a deep-rooted tendency scarcely eradicable.

It should be stated, too, at the outset, that the vast majority of cases of so-called cystitis are inflammations of the neck of the bladder and of that part of the urethra passing through the prostate.

Acute cystitis is far less commonly met by the physician than the chronic form, while its treatment is far simpler, and, I may add, more satisfactory, at least so far as the removal of the acute symptoms is concerned. Rest in bed is a primary and essential condition. Leeches to the perinæum should be applied more frequently than they are. A poultice to this same region and over the abdominal region is always useful, while a brisk saline cathartic should never be omitted.

As the feverish state which always accompanies cystitis is more or less constantly associated with a scanty urine, concentrated and irritating to the inflamed mucous membrane, it is desirable at once to increase the secretion, and thus dilute it. Copious libations of pure water, to which the citrate or acetate of potassium is added, in fifteen- to twenty-grain doses for an adult, should be allowed. The ordinary spirits of nitric ether in two-drachm doses every two hours is an admirable adjuvant, and may be combined with the officinal liquor potassii citratis, which contains about twenty grains of citrate of potassium to the half-ounce. Formerly the mucilage of flaxseed or flaxseed tea was much-used as a diluent menstruum for the diuretic alkalies indicated, but I am doubtful whether it is any more efficient than a like quantity of water.

Where there is much pain and straining, as is often the case, especially where cantharides is the cause of the inflammation, opium is indispensable, always in the shape of a suppository, half a grain to a grain of the extract being thus administered, or a proportionate amount of morphine. Iced-water injections into the rectum, or pieces of ice similarly applied, are very efficient in allaying the pain and irritation where additional measures are needed.

The successful treatment of *chronic cystitis* is a much more difficult task, for three evident reasons: 1st, the constant presence in the bladder of the urine with its irritating qualities, especially to an inflamed mucous membrane; 2d, the difficulty in getting remedies to reach the inflamed surface; and, 3d, the pent-up inflammatory products, which in their decomposition often make the urine still more irritating by exciting in it ammoniacal changes. There is no doubt that, if the urine could be kept from entering the bladder during the existence of an inflammation, the latter would rapidly heal; that cure would be facilitated by obtaining ready escape for the pus and mucus formed in the inflammatory process; while happier results might also be reasonably expected if we could secure readier access for remedies to the inflamed areas. None of these indications can be met entirely, hence the difficulty in attaining a cure. They remain, however, the conditions to be fulfilled, and while none can be thoroughly secured, they may be approximated in various degrees. To do this should be the object of treatment.

First, the irritating qualities of the urine may be diminished by the use of diluents as already recommended in the treatment of acute cystitis. Almost any of the negative mineral waters, so highly recommended by their owners, are useful for this purpose. Just as good is pure spring-water, or even Schuylkill water, and better is distilled water. From one to two quarts should be taken daily. If the kidneys are equal to their office, a large quantity of light-hued urine, of low specific gravity and relatively weak in solids, will be secreted.

When it is proposed to go further and add to the efficiency of diluents, mistakes are often made. While one can scarcely go astray in adding alkalies to the fluid ingested in acute cystitis, it is very different with the chronic form. In this the urine is often alkaline, or ready to become so on the slightest addition of alkali to the blood. Such alkalinity of urine in turn favors decomposition, the effect of which is to convert the pus, if present, into a tenacious, glairy fluid which the bladder can not evacuate. Notwithstanding this tendency, I have known liquor potassæ and other alkalies to be administered under precisely these conditions—adding fuel to the flame. The indication under these circumstances is to render the urine acid, if possible, although this is very difficult to accomplish. Benzoic acid has the reputation of doing this, and it probably is true of it when administered in very large doses. It may be given in the shape of a five-grain compressed pill, of which at least six must be given in a day to produce any effect. The same property has been assigned to citric acid, but this is a mistake, as all of the vegetable acids, when ingested, are eliminated as alkaline carbonates.

The second indication is to medicate the inflamed surface. Two ways, of course, suggest themselves: (*a*) by the internal administration of drugs; (*b*) by the injection of medicated liquids into the bladder.

To carry out the first method, an enormous number of infusions, decoctions, and fluid extracts of vegetable substances have been suggested, the vast majority of which are absolutely useless, except as they serve by their quantity to act as diluents. Among the best known of these are buchu, pareira brava, uva ursi, and triticum repens. I have never known any beneficial results from any of them, and have long ago ceased to prescribe them.

The only class of remedies I have found of service in cystitis through their internal administration are the balsams. Of these, the balsam of copaiba is practically unavailable, because not one stomach in a hundred will submit to its ingestion in sufficient doses or for long enough time to permit it to be of any use. On the other hand, I have found sandal-wood oil very useful, and it is about the only remedy of which I can say this for its direct effect upon the mucous membrane of the bladder. It is also comparatively well borne by the stomach, and is best administered in capsules containing ten minims. I believe it has heretofore been the usual custom to give these and like remedies after meals, but I have recently adopted the method of giving them on an empty stomach before meals. I believe they are as well, and even better, borne than when given after food, and they pass into the blood much more quickly. It is desirable to impregnate the blood and impart to the urine a balsam odor. This is scarcely possible with less than eight capsules a day—two before each meal and two at bedtime. I think I may say that I have found the so-called Santal-Medy capsules, which are, I believe, nothing but a very pure sandal-wood oil, better borne than the other specimens of the oil. I have given as many as twelve of these a day for considerable periods of time without deranging the stomach.

Both boric acid and benzoic acid are useful adjuvants to the treatment of chronic cystitis through their antiseptic effect on the urine, each in five-grain doses rapidly increased to ten. I have used resorcin in five- to ten-grain doses, and naphthaline in two-grain doses for the same purpose.

The application of remedies to the bladder by injections can be conveniently considered in connection with the third indication—the getting rid of the products of inflammation, the pus and mucus, and the compounds resulting from their decomposition. The latter are, of course, not always present, but all who have had much experience with cystitis are familiar with the tenacious, glairy mucoid matter, which will not drop or rise up in a pipette, glistening with large crystals of triple phosphate, and exhaling a stinking ammoniacal odor which quickly contaminates an entire apartment. There is only one way to get rid of this, and that is to wash out the bladder, and too often this is too long deferred. Tepid water should be first used, and the injection made through the soft catheter now so invariably adopted. Sir Henry Thompson is very emphatic in his directions that no more than two ounces should be thrown in at a time, and that this should be allowed to run out, a like quantity again injected and allowed to run out, and this repeated until the water comes out as clear as it enters. In a very large experience in washing out bladders, I have never met an instance in which the amount named by Sir Henry may not be doubled with advantage, so that I begin with four ounces. When this quantity is used, a much shorter time is necessary to cleanse the bladder thoroughly; and after the capacity of the bladder has been determined I often throw in more, because it is sometimes useful to distend the viscus a little, for in this manner the depressions and inequalities between the muscular trabeculæ, always present in advanced bladder inflammations, are thoroughly reached. These simple injections, practiced once a day, or in severe cases twice a day, often result most happily. I have seen the pus reduced from large bulk to a mere trace, and micturition reduced from five or six times to once a night. Commonly, after a few injections with plain water, I add some medication. My favorite is the salicylate of sodium in the proportion of a drachm to the pint. Its disinfecting qualities are undoubted, and I have some reason to believe that the soothing effect claimed for it is not without foundation. I have used a good deal of Sir Henry Thompson's soothing solution—of biborate of sodium an ounce, glycerin two ounces, water two ounces, and of this mixture half an ounce to four ounces of tepid water—with about the same result. Boric acid, in the proportion of a drachm to the pint, is also very satisfactory.

Alum is an astringent which has been too much overlooked of late in suppurating processes in mucous membranes, and may be substituted for the salicylate with advantage where the pus does not diminish as rapidly as is desired. It should be more cautiously used than the salicylate of sodium. Sufficient of the powdered alum should be first added to a pint to give it a distinctly astringent taste, when the bladder should be washed out as described, while a small quantity may be allowed to remain after the last injection.

Where there is a foul odor present I use the bichloride of mercury in solution, but exceedingly dilute. It is almost incredible how small a proportion of this salt is irritating to the bladder, and, having learned by experience, I never begin with a solution stronger than 1 to 25,000, but gradually increase the strength if it is well borne. Carbolic acid may be substituted for the bichloride of mercury, but it has not been so satisfactory in my hands.

Other drugs are recommended to be similarly used, but I have had little or no experience with them. One from which much may, with reason, be expected is the peroxide of hydrogen, one part to five of water. In the single instance in which I have used this the patient who had been previously using the bichloride solution, returned of his own accord to the latter, because he thought it more satisfactory. Among other remedies recommended to be used the same way are acetate of lead, one grain to four ounces; dilute nitric acid, one or two minims to the ounce; and nitrate of silver, one grain to four ounces; but I have had no experience with them.

Anodynes are indispensable in many cases of cystitis to relieve the patient of extreme pain and the frequent desire to pass water, which are the result of the same cause. Opium and its alkaloids are the most efficient, and they are best introduced by the rectum. There appears to be no absorbing power for opium at least, and there is no use in attempting to use any anodynes by that channel.

Cocaine, from which so much might reasonably be expected, has failed of its purpose in my hands. I have injected as much as two ounces of a two-per-cent. solution into the bladder without effect, except to produce some of the symptoms of cocaine poisoning. Most disappointing, too, has been the use of cocaine to remove the exquisite tenderness of the urethra which sometimes attends this condition, and is a serious drawback to the use of the catheter.

Where there is greatly enlarged prostate, catheterization is indispensable, and is attended often with the most happy results. It is often too long deferred because of the natural repugnance to the use of the instrument. Of course, the patient or his friends should be taught to use the catheter and to wash out the bladder. In these days of refined antisepticism it is scarcely necessary to say that the extremest precautions should be taken to cleanse the catheter after its use, in order to avoid sepsis. There is nothing better for this purpose than the bichloride solutions (1 to 1,000), in which the catheter should be allowed to lie for a short time after being cleansed with boiling hot water.

How much can be accomplished by such treatment as the above described? That an absolute and total cure is ever obtained in chronic cystitis is exceedingly doubtful. Hence the statement at the beginning of my paper, that the medical treatment of cystitis does not furnish a very satisfactory chapter in therapeutics. On the other hand, that a life of suffering may be converted into one of comparative comfort is certainly true, and I have many times seen it. Nay, more; I have more than once seen a life prolonged half a dozen years in such comfort by careful attention to the bladder of the kind described.

It occasionally happens, of course, that all treatment of this kind fails, and yet the patient lives to be tortured by the discomfort of the situation. Three times I have had perineal section done by the surgeons for the relief of such cases, in each case with some relief, although with less than was hoped for.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

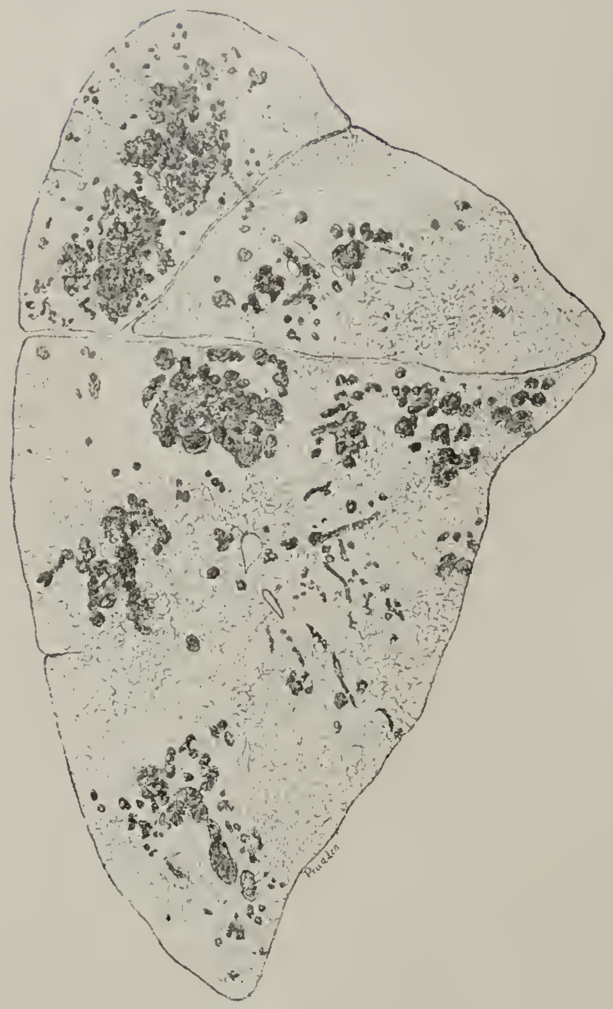


Fig. 1.—Section of lung of rabbit, twenty-four hours after intratracheal injection of dead tubercle bacilli, showing areas of small-cell collection. About twice the natural size.

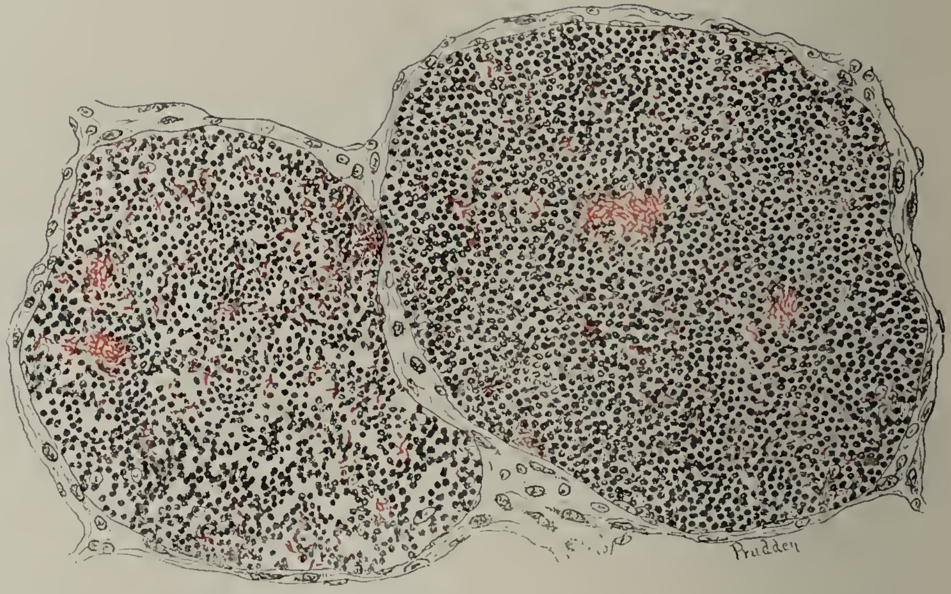


Fig. 3.—Air-vesicles near small bronchus shown in Fig. 2, similarly filled.

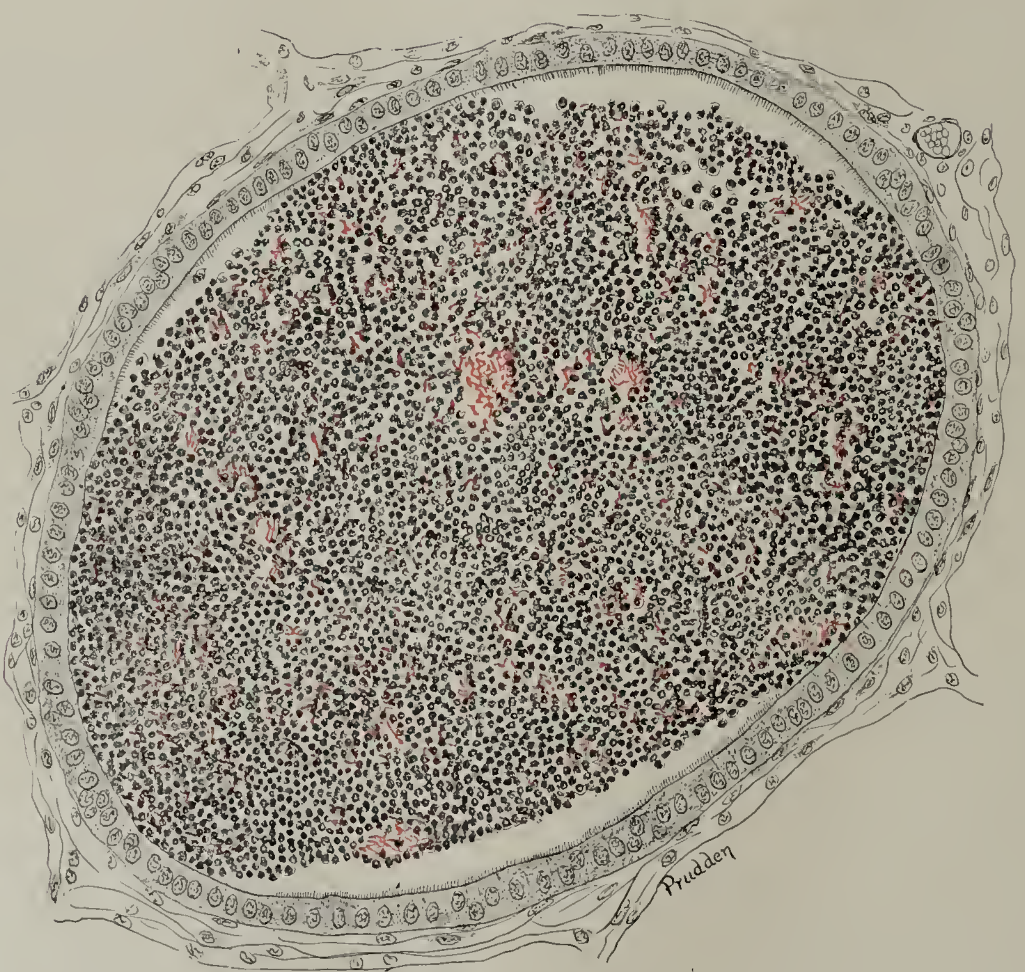


Fig. 2.—Small bronchus of rabbit's lung, twenty-four hours after intratracheal injection of dead tubercle bacilli, showing accumulation of small cells and bacilli.

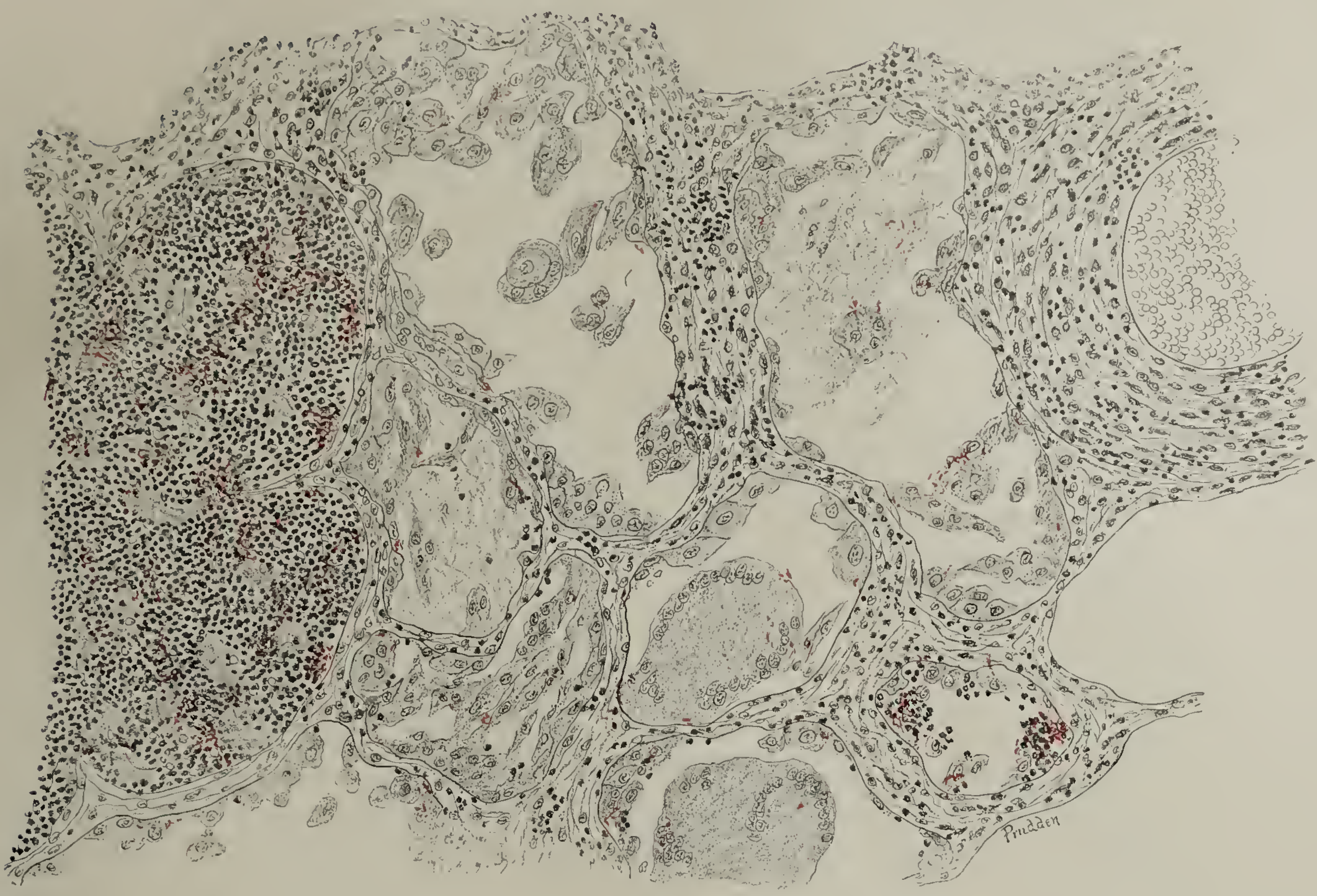


FIG. 4.—Edge of one of the areas of consolidation in the rabbit's lung, four days after intratracheal injection of dead tubercle bacilli. At the left is seen the primary focus of exudation containing small cells, many dead bacilli, and necrotic exudate.

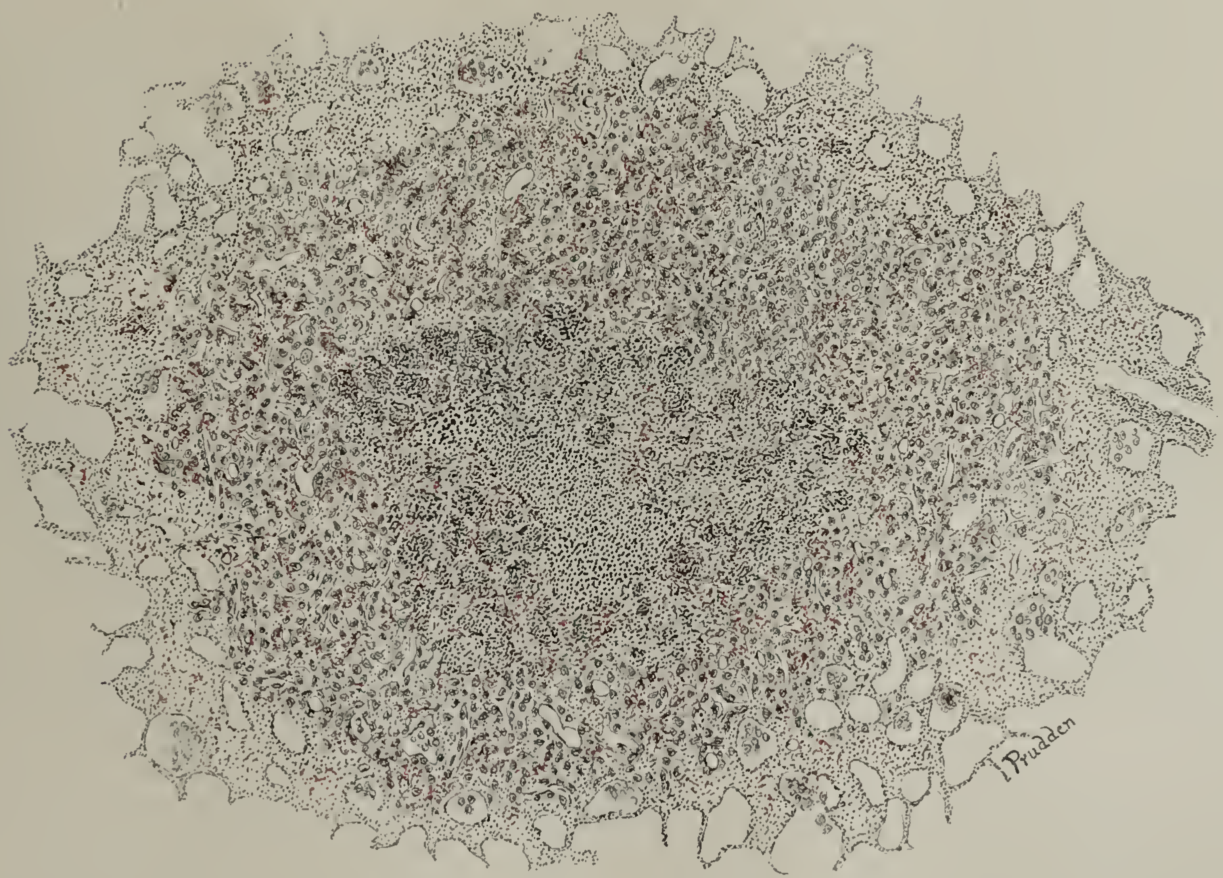


FIG. 5.—Typical nodule in the rabbit's lung on the eleventh day after intratracheal injection of dead tubercle bacilli.

ILLUSTRATING DR. PRUDDEN'S ARTICLE.

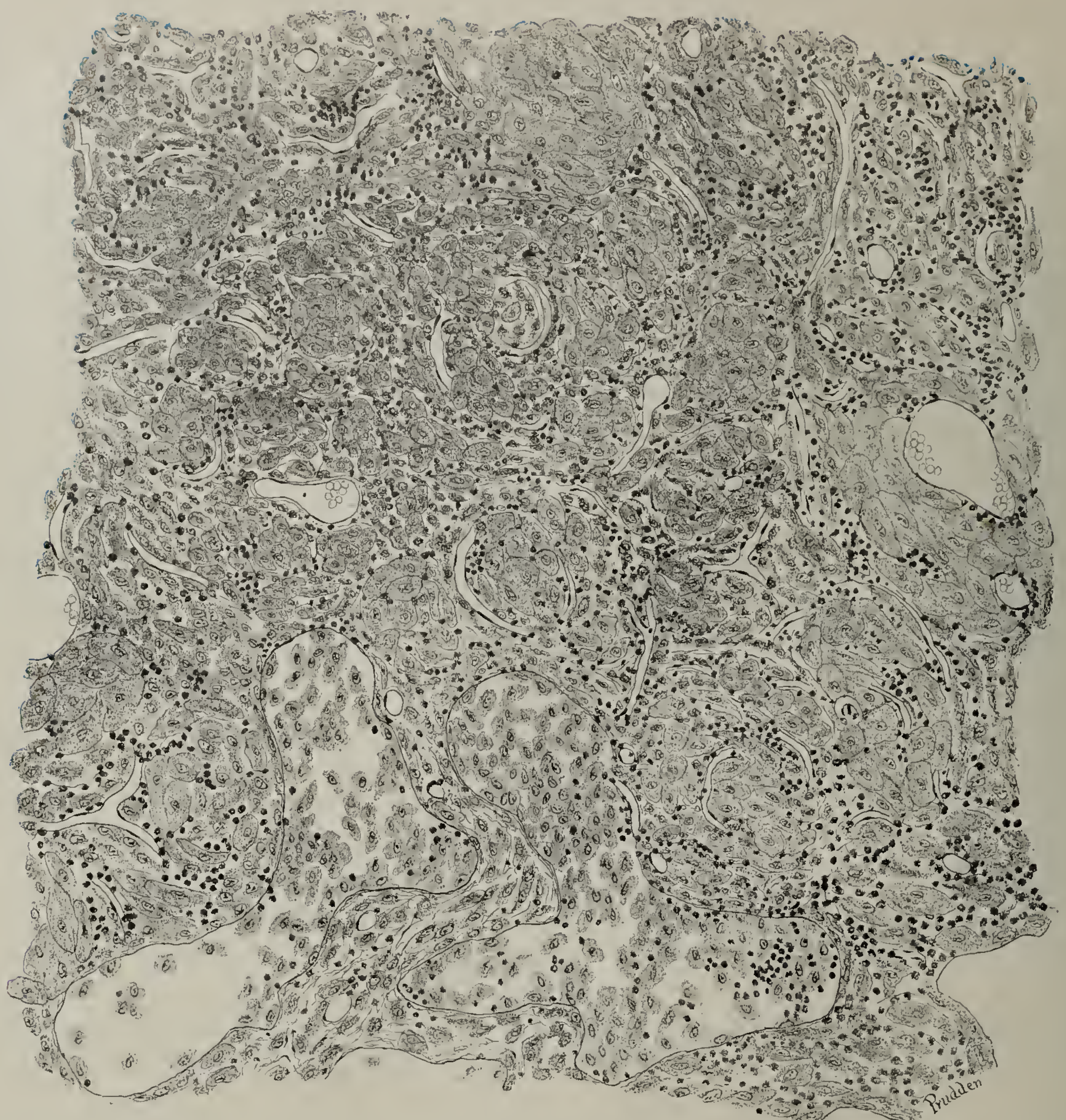


FIG. 6.—Peripheral portion of consolidated area in the rabbit's lung, seventeen days after intratracheal injection of dead tubercle bacilli. A few bacilli are yet demonstrable in the new tissue, but are not shown in the cut.

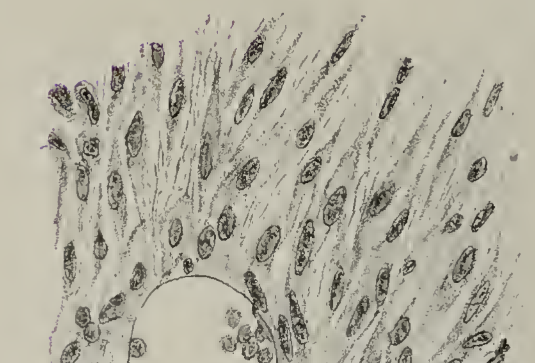


FIG. 7.—Young cellular connective tissue in an area of consolidation in the rabbit's lung, twenty-four days after the intratracheal injection of dead tubercle bacilli.

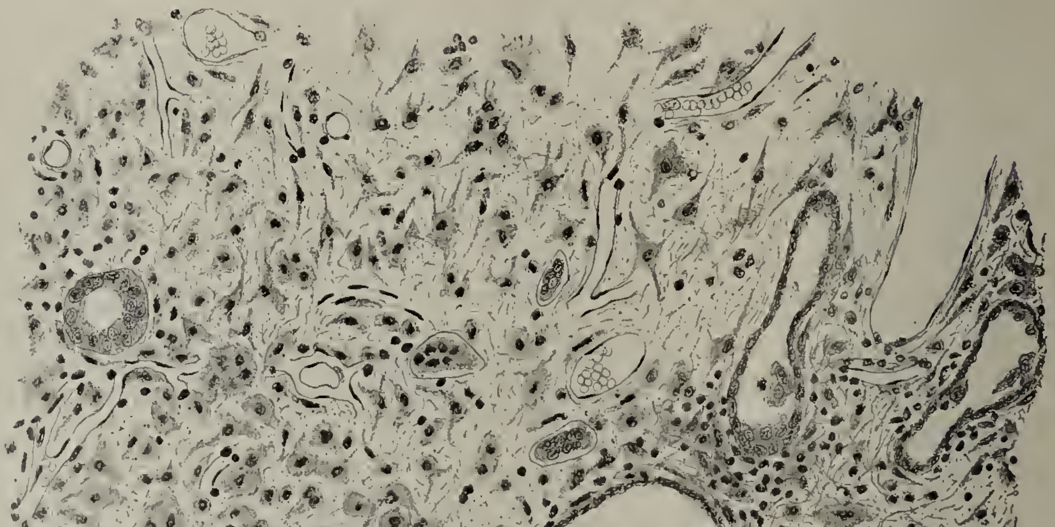


FIG. 8.—Portion of connective-tissue nodule in rabbit's lung, showing the result of the healing process, twenty-nine days after the intratracheal injection of dead tubercle bacilli. The larger openings in the cut are inclosed air-spaces whose epithelial lining has undergone reversion to the fœtal type.

THE NEW YORK MEDICAL JOURNAL, December 5, 1891.

Original Communications.

A STUDY OF EXPERIMENTAL PNEUMONITIS IN THE RABBIT,

INDUCED BY THE INTRATRACHEAL INJECTION OF DEAD TUBERCLE BACILLI.

By T. MITCHELL PRUDDEN, M.D.,
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Introduction.

A great deal of the morphological complexity of the lesions of the lungs in both acute and chronic tuberculosis is due to inflammatory processes which do not present the characteristic features of tubercular inflammation. When we have taken account of the miliary tubercles, both single and conglomerated, of the larger and smaller masses of epithelioid-cell growth which we call diffuse tubercle tissue, and of the various aggregates of these—often in a condition of more or less advanced coagulation necrosis; when we have further brought into line that series of more or less extensive inflammatory consolidation of the lungs in which, without the development of characteristic tubercle tissue, coagulation necrosis and often disintegration of both lung and exudate occur, under the influence of the living growing tubercle bacillus—there still remains a series of intra-alveolar inflammatory exudations about and among the more characteristic tubercular areas whose cause and origin are not sufficiently understood. These exudations are sometimes fibrinous, sometimes epithelioid in character; sometimes they are largely composed of small spheroidal cells; or, which is more frequently the case, all three forms of exudate are intermingled.

No doubt a double infection sometimes occurs, so that associated with the lesions directly induced by the tubercle bacillus are those brought about by the pneumococcus or the pyogenic bacteria, or by other occasional inciters of suppurative inflammation. But this appears to be of comparatively infrequent occurrence.

On the other hand, there is not infrequently in tuberculosis a considerable formation of new connective tissue in the lungs, either circumscribed or diffuse, the relationship of which to the specific tubercular lesion is not very clear.

It was with a view of learning, if possible, to what extent dead tubercle bacilli may be capable of inducing these and other phases of complicating non-specific forms of inflammation of the lungs that the studies were undertaken which are now to be recorded.

Experiments.

In a paper recently published by Dr. Hodenpyl and myself * it was shown that dead tubercle bacilli, introduced in moderate numbers into the ear vein of the rabbit, are capable of inducing after a time at their seat of lodgment in the blood-vessels, especially of the lungs and liver, circumscribed growths of new cells which in many respects closely resemble miliary tubercles. These new growths differ, however, fundamentally from genuine miliary tubercles in that they do not, so far as we could observe, undergo cheesy degeneration and never contain live tubercle bacilli, and are hence not infectious. Hand in hand with the development of these new tissue structures there occurs, under the influence of the dead tubercle bacillus, a proliferation of endothelium and an extravasation of leucocytes. It was shown, in other words, that *dead tubercle bacilli possess not only positive chemotactic powers, but are, in a marked and peculiar way, capable of stimulating various phases of cell proliferation.* But, in order to produce these tubercle-like structures in the simple uncomplicated forms described in our paper above referred to, it is necessary, so far as our observations go, to introduce the dead bacilli well distributed in very minute particles through the fluid used for injection, because in this way one avoids any considerable immediate vascular disturbance at the seat of lodgment of the dead germs.

If, on the other hand, we inject into the ear vein of the rabbit an emulsion of dead tubercle bacilli in which the flocculi formed of the bacillary masses are large, so that they block up the smaller blood-vessels where they lodge, one gets an entirely different series of results. This is especially marked in the lungs, to which organs our attention in this paper is largely limited. It will be remembered that in our former experiments the characteristic lesions were slow in developing, from two to six weeks often elapsing before any gross lesions were produced, while in some cases no gross but only microscopical changes appeared. The animals did not, as a rule, experience any ill effects from their dosage.

But when larger flocculi of dead bacilli are injected in considerable quantity, a certain proportion of the animals die at once from cerebral embolism. Others fall directly into convulsions, apparently from the same cause, but speedily recover. The larger proportion, however, do not appear to suffer from the immediate effects of the injection, if this be made slowly. If, now, the animals which have survived the injection of these larger masses of bacilli be killed at intervals of from forty-eight hours to ten days, or if they die during this period, it will be found in a considerable proportion of cases that even as soon as the second day after the injection the lungs are more or less thickly beset with small, white, rounded, or branching masses of solidified lung tissue.

Microscopical examinations of these solid areas show that they consist of one or more much-dilated small blood-vessels surrounded by an irregular zone of air spaces, both of which are densely packed with small spheroidal cells resembling leucocytes. In sections stained for tubercle bacilli it will be seen that within the blood-vessels, intermingled with the leucocytes and blood-plates which form the bulk of the thrombi, are large scattered masses of tubercle bacilli. But the bacilli are not confined to the vessels. Everywhere in the air-vesicles of the consolidated areas they lie scattered among the cells which fill the air-spaces or are clustered within them. The whole picture conveys the impression that, either owing to the disturbance of the circulation by the occluding bacterial embolus or to the irritating effects of the dead germs themselves, there has been not only a dense gathering of leucocytes in the vessels, forming voluminous thrombi, but that hand in hand with the emigration of leucocytes from the affected vessels there has been a diapedesis of dead tubercle bacilli. Whatever may be the reason, the fact is that within forty-eight hours the tubercle bacilli in large numbers have got outside the blood-vessels where they first lodged and are mingled with the exudation in the contiguous air-vesicles. While this great collection of leucocytes in the blood-vessels and in their adjacent air-vesicles may be in part due to the simple embolic vascular disturbance, it would seem to me that it may be largely owing to the marked chemotactic powers which the dead tubercle bacilli possess, as has been shown by several observers.

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* *N. Y. Medical Journal*, June 6 and 20, 1891.

I have not followed this special line of observation beyond a series of injections on fourteen rabbits, because the point which I had in view can be more directly reached by a form of experiment which eliminates the extensive and often profound vascular changes thus brought about.

What I wished to ascertain in these studies was the effects of dead tubercle bacilli introduced directly into the air-vesicles of the lung of the rabbit in considerable quantity through the trachea. To record these results is the primary purpose of this paper.

The material used for the intratracheal injections was prepared as follows: A voluminous flask culture of the tubercle bacilli in glycerin bouillon, two months old, was filtered through sterilized filter paper to separate the bacterial mass. The latter was now carefully washed in the filter with large quantities of sterilized water, and then with about a hundred times its volume of distilled water was steamed in a small flask for two hours in the Arnold sterilizer. The fluid was now filtered off—to remove any of the metabolic products of the life process of the bacillus which might be soluble under these conditions—and again thoroughly washed in the filter. The bacterial mass, while still moist, was now again mixed with about one hundred times its volume of water and again boiled for two hours, when it was ready for use.

I have, in another set of experiments, boiled the cultures in fifty per cent. of glycerin for an equal time, filtering off and washing in the same way.

In another set of experiments I have used glycerin agar cultures of the tubercle bacillus, sterilized and washed in the same way.

While these three sets of animal experiments were performed separately and at different times, the results were identical, so that we may consider them as forming one series.

It was now assumed that this milky emulsion, whichever way prepared, contained no living tubercle bacilli, and that all the poisonous materials which might have been present in the fluids of the original culture or clinging to the surfaces of the dead bacilli had been removed from the material, at least in so far as they are soluble in boiling water or in glycerin and water.

The mode of operative procedure was as follows: After cutting away the hair and sterilizing the skin about the neck of the rabbit, a small incision was made, exposing the trachea, and the needle of the injecting syringe was thrust through its wall. About two cubic centimetres of a milky emulsion of dead tubercle bacilli was slowly introduced in this way, the animals being held upright and turned about from side to side during and for a few moments after the injection, so that the fluid might run well down into various parts of the lungs. The animals bear this injection perfectly well, often experiencing a momentary dyspnœa, and the wounds of the neck always closed promptly.

Thirty-four animals were operated upon in this way and were killed at the following intervals: Two on the first day after the operation, three on the second day, one on the fourth, one on the fifth, two on the sixth, one on the eighth, one on the eleventh, one on the thirteenth, one on the seventeenth, one on the eighteenth, two on the twentieth, three on the twenty-first, two on the twenty-third, one on the twenty-fourth, two on the twenty-seventh, two on the twenty-ninth, two on the thirty-first, one on the thirty-fourth, three on the forty-first, one on the fifty-third, and one on the seventy-second.

The results of the introduction of dead tubercle bacilli into the lungs of rabbits through the trachea in this way are so certain, so positive, and so uniform, that it seems to me wiser to give the general effects of the action of the dead germs than the story of particular animals.

The gross appearance of the lungs of animals operated upon in this way changes considerably from day to day, and the general topography of the lesions varies greatly with the vicissitudes of the experiment, in accordance with which the masses of bacilli may be abundant or scanty, large or small, are grouped in one lung or part of a lung, or are widely disseminated through both organs. Thus, one or both lungs may be irregularly besprinkled with small miliary or submiliary areas of consolidation, or such areas may be associated with larger areas of diffuse consolidation which may occupy portions of a lobe, or a whole lobe, or nearly a whole lung. The situation of the lesion is directly dependent upon the seat of lodgment of the dead bacilli, while its extent appears to be directly and uniformly dependent upon the amount of bacilli introduced or the length of time allowed to elapse between the injection and the killing of the animals. No lesions, either gross or microscopical, were found in any of the viscera except the lungs.

The general course of events after the introduction of dead tubercle bacilli into the lungs of rabbits under the conditions set forth above is as follows:

As early as twenty-four hours, if the animal is killed, extensive lesions are developed. The lungs are moderately congested, and numerous white spots of consolidation, from 0·5 to 2 millimetres in diameter, are seen shimmering through the pleura. The cut surface of the lungs, as a rule, reveals more extensive lesion than would be expected from the superficial inspection of the organs. The cut surfaces usually show large numbers of irregularly branching or isolated and scattered white, dense, airless areas, commonly most abundant posteriorly, which correspond with the bronchi and groups of their adjacent air-spaces. There is usually special congestion of the blood-vessels immediately about these consolidated areas in some parts of the lungs.

The gross appearance of the cut surface of a lung twenty-four hours after the injection is indicated by Fig. 1.

The microscopical examination shows that the white areas of consolidation are due to an extreme filling and distention of the smaller bronchi and portions of their contiguous air-spaces with densely packed masses of small spheroidal cells resembing leucocytes. Many of the smaller blood-vessels in these consolidated areas are packed with small spheroidal cells. In some places there is a very slight increase in the number of the epithelial cells of the air-vesicles.

Sections stained for tubercle bacilli show that wherever this gathering of small spheroidal cells had occurred there are tubercle bacilli, usually in very large numbers. Indeed, tubercle bacilli are nowhere found in the air-spaces in any considerable numbers without being closely intermingled with these small cells.

While the medium and smaller bronchi in the consolidated areas are closely packed with the small spheroidal cells and dead tubercle bacilli, the epithelial lining of the bronchi is almost wholly intact. There are neither inflammatory nor degenerative nor exfoliative changes in the bronchial epithelium. It appears more as if the small cells had been forced up into the bronchi from the groups of communicating air-spaces which are so densely packed with them. In some places, especially where the accumulation of small spheroidal cells in the air-spaces is large and the dead bacilli are numerous, the cell bodies appear homogeneous and their outlines indistinct; but their nuclei are, as a rule, well stained, so that the dense masses of exudate present somewhat the appearance of coagulation necrosis, but are still evidently not in this condition.

The result, then, of the action of dead tubercle bacilli in large numbers in the air-spaces of the rabbit's lung for twenty-four hours is, in general, the accumulation in enormous numbers about the bacilli, and nowhere else, of small spheroidal cells resembling leucocytes.

The microscopical appearance of a small bronchus showing bacilli is given in Fig. 2, and of two adjacent air-vesicles in Fig. 3.

At the end of the second day the gross appearance of the lungs differs little from that at the end of the first. Microscopical examination shows that the small bronchi and air-spaces in groups are densely packed and distended with small spheroidal cells, many of which, especially where there are many tubercle bacilli, have undergone a peculiar change. The nuclei remain apparently unaltered, but the bodies are swollen, no longer granular, but nearly homogeneous and glassy in appearance, and in places have run together, forming shining masses. This change in the accumulated cells may begin, as already indicated, and may even be fairly well marked within twenty-four hours after the injection.

The empty air-spaces close to those which are thus filled with small cells and dead tubercle bacilli are so squeezed that their lumina are for the most part closed. They then form an ill-defined, irregular, solid zone of atelectasis immediately about and in places running into the exudative area.

In animals killed from the fourth to the sixth day after the injection into the trachea the gross appearance of the lungs is essentially similar to that presented at the end of the first, save that around the white consolidated areas there are usually visible narrow, irregular, grayish, translucent zones of consolidation.

The smaller bronchi, in places, and their groups of related air-spaces, are filled, as at an earlier period, with dense masses of intermingled small spheroidal cells and dead but readily stained tubercle bacilli. Where these central masses are dense and harbor many bacilli, the cells are, as at an earlier period, homogeneous and diffusely outlined. The blood-vessels in and near these consolidated areas are often crowded with small spheroidal cells, and around many of the larger vessels of these areas there is a perivascular sheath of spheroidal cells.

The translucent consolidated borders of these areas are largely formed by the filling of the surrounding air-spaces with collections of epithelioid cells, or giant cells, or small spheroidal cells, or all of these variously intermingled. There is much variability in the number of giant cells in the new tissue, which I can only account for by individual peculiarity of the animals. In an animal killed on the fourth day, for example, there was almost no tendency to produce giant cells, while on the fifth day an animal treated similarly showed them in enormous numbers.

Tubercle bacilli are present in this border zone, but in less numbers than in the primary areas of consolidation.

Fig. 4 shows the edge of one of these areas of consolidation from the lung of a rabbit killed four days after the tracheal injection of the dead tubercle bacilli.

The essential change, then, which takes place in the lesion toward the end of the first week is the formation and accumulation of cells—epithelioid and giant—in the air-spaces about the primary focus of small-cell collection, and the infiltration and thickening of the walls of the involved air-spaces.

In the second week two distinct sets of changes occur in the consolidated areas, whether these be large or small:

First, there is a well-marked tendency to disintegration and absorption in the central portion of the solid areas—that is, in that portion first to appear at the seat of lodgment of the bacilli, and which is formed of densely packed masses of small spheroidal cells mingled with large numbers of dead bacilli. The walls of the old air-spaces in this area are apparently dead, so that the central portion of the solid areas is made up of a mass of necrotic, disintegrating tissue, which appears to be growing smaller by absorption.

The *second* set of changes is in the translucent peripheral zone which now forms the most prominent feature of the consolidated area. This peripheral translucent zone is formed of air-spaces more or less closely packed with epithelioid cells and giant cells, the former largely preponderating and showing in the most exquisite way the varied nuclear figures of indirect cell division. The walls of the air spaces of this peripheral zone are thickened, apparently from the accumulation of fluid and small spheroidal cells within them, and their blood-vessels are in places widely distended with leucocytes, so that the areas of consolidation are often distinctly bordered by a rim of small spheroidal cells.

In the immediate vicinity of clusters of the dead tubercle bacilli the formation of epithelioid cells is not so regular and perfect as at a little distance from them, or where they are more sparsely scattered.

Near the clusters of bacilli the new cells are massed in the form of ill-defined giant cells, or the bacteria are surrounded by an irregular granular or translucent material, into which, here and there, leucocytes have penetrated. One not infrequently sees that the epithelioid cells which have developed around a clump of dead bacilli in an air-space are radially placed around it with their nuclei uniformly crowded to the distal portion of the cell.

The result of these minute alterations is that to the naked eye the solid areas at this time present the appearance of gray, translucent, irregular masses of new tissue, having proportionately small and inconspicuous white centers. The general appearance of the solid areas toward the end of the second week is represented, somewhat schematically, in Fig. 5.

In the third week there is a steady disappearance of the necrotic central portion of the solidified areas, while in the peripheral translucent zone the old air-spaces are steadily obliterated by the thickening of their walls and the disappearance of lines of demarkation between these and the cell-filled air-spaces. So that the original air-spaces come to be represented by larger and smaller collections of closely packed epithelioid cells lying in the meshes of a very vascular and very cellular new connective tissue. The blood-vessels in the new connective tissue have lost all the topographical characters of the original blood-vessels of the affected region, but may be, in part, some of these which have persisted. On the other hand, many of them are certainly newly formed, since one can find in these sections the various phases of blood-vessel development, such as are seen in typical granulation tissue. The appearance of a typical portion of this peripheral zone at about the middle of the third week is shown in Fig. 6.

From the third week on the story is usually one of the steady disappearance of the necrotic center and the conversion of the peripheral areas of consolidation into masses of connective tissue with their continuous decrease in size. The tubercle bacilli, too, become steadily less abundant. This new connective tissue is at first very cellular, as shown in Fig. 7, but the intercellular substance continually increases in amount.

In many of the nodules of new connective tissue portions of the old air-spaces are inclosed by the new tissue and wholly separated from surrounding air-spaces or connected with them by flattened strings of epithelioid cells. These inclosed air-spaces are, as a rule, lined with a continuous layer of cuboidal or flattened cells. There has obviously been a reversion of the epithelial cells lining the inclosed and isolated air-spaces to the embryonal type, as there is under somewhat similar conditions in some phases of chronic phthisis. Fig. 8 shows a typical portion of one of these connective-tissue nodules at this time.

At last nothing is left of the consolidated areas but larger or smaller masses of cicatricial tissue which may or may not harbor a few still stainable granular tubercle bacilli. The time which is required for the conversion of the nodules produced in the lungs by the injection of dead tubercle bacilli into dense cicatrices varies considerably, depending upon the amount of lung tissue involved—that is, upon the size of the primary mass. The smaller ones may disappear to the naked-eye inspection as early as the end of the third week; the larger may remain for many weeks. When whole lobes are involved, many weeks may elapse before the conversion of the involved portion into cicatricial tissue. But, in general, the description which I have given above expresses as closely as is possible, with the material at my disposal, the course of events. Sometimes there appears to be little tendency in many of the small nodules to the formation of connective tissue, but the nodules consist, after the lapse of many weeks, of a congeries of air-vesicles greatly diminished in size by the thickening of their walls and densely packed with epithelioid cells and giant cells. In one animal killed on the twenty-third day extensive calcification of one of the connective-tissue nodules had occurred.

I could not observe that the size or nutritive condition of the animals made any difference in the rate of progress of the changes in the lesions. As has been already stated, the lesions in the lungs, even when a large part of a lobe was involved, did not appear to exert any harmful influence on the health and bearing of the animals.

Summary.—These studies show that when dead tubercle bacilli are introduced in small flocculi into the air-spaces of the rabbit's lung there occurs at their seat of lodgment, first, a large accumulation of small spheroidal cells in the air-spaces. This is immediately followed by a proliferation of epithelioid cells and formation of giant cells in the contiguous air-spaces. Then occur gradual necrosis, disintegration, and absorption of the primary small-celled center and a conversion of the peripheral zone into very cellular and vascular new connective tissue. Hand in hand with the absorption of the necrotic center the new-formed connective tissue becomes denser and less abundant, until finally the seat of lesion is indicated only by a shred or patch of dense connective tissue, which, if the original lesion was not extensive, may be wholly invisible to the naked eye. Sometimes, however, but little connective tissue is formed except in the walls of the involved air-spaces, but the nodules persist for long periods as a congeries of densely packed epithelioid and giant-cell masses.

Remarks.—This is a simple biological study, showing the reaction of certain cells in the rabbit's lungs in the presence of the dead bodies of a well-defined and important species of pathogenic bacteria. It has no necessary bearing on human tuberculosis, nor even on tubercular inflammation in rabbits. And yet when we consider the close analogy between tuberculosis in man and in the rabbit, and the similarity between certain phases of the lesions produced in the rabbit by the living and the dead germs, we are, it seems to me, justified in certain limited conjectures as to the possible or probable bearings of such a study on our conception of human pulmonary tuberculosis.

We may, I think, assume that of all the tubercle bacilli which are present in the body at a given time in any form of tuberculosis, only a certain proportion are alive. This we may fairly assume from what we know of the life history of the tubercle bacillus under artificial cultivation, together with what we know of the life history of bacteria in general, both within and without the body. New individuals form and old ones die with varying degrees of rapidity so long as the environment favors vegetative activity. With the formation of spores and the maintenance of the life of the species in this way when vegetative activity ceases, we have here nothing to do.

It has been abundantly shown in this study and in those on the same theme which have preceded it that the power of taking and retaining the characteristic stain may be retained by the tubercle bacillus long after life in the germ has ceased and after its subjection to prolonged boiling and to the influence of living body cells. It has been shown, too, that dead tubercle bacilli slowly disintegrate and finally disappear when surrounded by living body cells and by the body juices.

The primary difference between the action of the dead and that of the living tubercle bacillus in the rabbit appears to be that the living bacillus proliferates in the body and produces progressive lesions with a marked and characteristic tendency to generalization and to coagulation necrosis—developing an acute infectious disease; while the dead bacillus produces lesions closely similar morphologically in many respects, and yet which are not indefinitely progressive and do not tend to generalization or to the production of an advancing coagulation necrosis, and, furthermore, do not induce an acute infectious disease. The necrosis which develops under the influence of the dead germs differs from that of genuine tuberculosis, not only in its morphological characters, but also in the time of its occurrence. It is one of the earliest of the changes following the primary gathering of cells about the dead bacilli and attains at once its maximum development. The cheesy degeneration of genuine tuberculosis, on the other hand, is a gradually developed and progressive process, and represents the usual culmination of the lesion.

We now know that dead tubercle bacilli can induce in the living body the development of cell structures which, within the limits above indicated, are morphologically characteristic of the lesions of tubercular inflammation. We do not know whether the living tubercle bacilli are capable of stimulating the body cells to the development of such lesions or not, because presumably both the living and the dead germs are present in the ordinary tubercular foci. We must admit the possibility that in acute and in chronic phthisis a certain proportion of the inflammatory foci in the lungs —certain of the broncho-pneumonic areas—may be caused by dead tubercle bacilli transported from cavities to other parts of the lungs.

The conjecture was expressed in a previous paper on the effects of dead tubercle bacilli by Dr. Hodenpyl and the writer, that the stimulus to cell proliferation in tubercular inflammation might be due to the bacterio-protein of the tubercle bacilli set free during their disintegration. That conjecture this study would seem to sustain.

Whether the characteristic cheesy degeneration of tubercular inflammation is due to an eliminated metabolic product of the living growing germ or to some product or influence as yet wholly unknown, remains to be found out. Experimental studies in that direction are in progress in this laboratory. Studies on the effects of combining the two factors—the dead germ and the metabolic products—by a separate administration in the same animal are also under way, but are not yet sufficiently advanced to permit of definite conclusions.

In view of what we know of the importance of the mustering of various forms of cells in the neighborhood of bacterial invaders of the body as a direct or indirect protection against their ravages, this power of dead tubercle bacilli to stimulate the reproduction of cells becomes of a great deal of apparent significance.

I have alluded, in the papers on this subject above referred to, to the possibility that the development of tubercle tissue in the body may be a conservative action of great importance. The studies here recorded would widen the scope of that conjecture by suggesting the possibility that not only the specific tubercle tissue itself, but the other cell accumulations which in the lungs so often accompany it, may serve an analogous purpose; for we should not forget that whatever shall be the ultimate outcome of researches on the absolute or relative importance of phagocytosis and the germicidal power of the body fluids, the efficiency of the latter is ultimately dependent upon cell activity, as Buchner and others have repeatedly insisted.

In view of this condition of affairs, it is perfectly possible, as Buchner * suggested very soon after Koch's first announcement of the powers of tuberculin, that that substance may owe some of its virtues, if such it possesses, to proteins which have resulted from the degeneration in the cultures of the bodies of the tubercle bacilli.

It is evident from this study that certain of the noncharacteristic complicating lesions of the lungs in acute and chronic phthisis referred to at the commencement of this paper, leucocytic and epithelial cell collections in the air-spaces of the lungs, as well as the development of new interstitial connective tissue, may be caused by the presence of dead tubercle bacilli at the seat of lesion.

We have in this form of experimentation on the rabbit a means of study of pulmonary inflammation wholly within our control and most useful for the examination and demonstration of those forms of cell activity which are involved in indirect division.

Finally, the power of inducing at will, without seriously compromising the health of the animal, small circumscribed foci of inflammation of varying intensity, which have a definite history and outcome, may be of no inconsiderable importance in the study of the action of drugs along the

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* Buchner. *Münchener med. Wochenschrift*, 1890, No. 47.

lines suggested by Koch's announcement of the localized effects of tuberculin in the body under conditions of focal inflammation analogous with those here experimentally induced.

Our knowledge of the effects of the tubercle bacillus in the body is now, I think, sufficiently advanced for us to make at least a conjectural analysis of its action.

1. So far as the primary morphological lesion is concerned, we may conjecture that the cell growth which is characteristic of miliary tubercle and diffuse tubercle tissue may be due to the action of the protein of the bodies of the germs set free as they degenerate in contact with living cells; and that this production of new tissue may not be intrinsically of such practical significance as has been hitherto supposed; or, if significant, it may be so as a conservative and not as a harmful process.

2. It would seem from our experiments that the cheesy degeneration which is so constant an accompaniment of tubercular lesions may be due to some metabolic product of the growth of the tubercle bacillus wholly distinct from the cell-stimulating bacterio-protein.

3. There still remains the possibility, most evident on clinical grounds, that beyond the factor which causes the tissue cells to grow, and beyond the factor which induces necrosis, there may be yet a third agency of toxic nature to which many of the graver systemic effects of tubercular infection are due.

This mere suggestion of an analysis of the action of the tubercle bacillus in the body is made in conclusion here only in a tentative way, with a view of affording a perhaps only temporary guiding thought in our future study of this most important disease and our future attempts to stay its ravages.

DISEASES OF THE URINARY APPARATUS.

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(*Continued from page 594.*)

PART I.—PHLEGMASIC AFFECTIONS.

II.

Outline of the General Pathology of the Urinary Apparatus.

General pathology, the foundation of special pathology, indicates the nature and constituent elements of morbid processes, and therefore their names and classes. From its study are deduced general principles for guidance in special pathology. It establishes the technical language and constitutes the chief part of the science of medicine. It has for its basis bio-chemistry, physiology, embryology, and histology. A fair knowledge of each of these branches of biology is indispensable to the right understanding of the processes of disease.

To bio-chemistry and physiology it is not now necessary to do more than allude, but to the cardinal points in the principles of embryology and histology it is proper that a little space be devoted as an introduction to the arrangement of the subjects of future examination.

It is well known that the elementary tissues of the human body are all derived from a primordial ovule, which, originally spherical in form, undergoes segmentation soon after its fecundation. This ovule then undergoes certain changes of form and size by invagination of one of its halves into the other, giving rise to what is called the gastrula. At this period of the life of the blastodermic vesicle, three parts consisting of cells are specialized, to wit: the epiblast, the hypoblast, and the mesoblast. From the epiblast arise the epidermic covering of the body and, it is said, also the brain; from the hypoblast is formed the epithelium of the internal mucous membranes; and from the mesoblast come the blood-cells, the endothelial or connective tissues (comprising mucous, glious, fibrous, cartilaginous, and osseous tissues), muscle tissue, and nerve tissue. Many of the cells, particularly those derived from the mesoblast—notably the blood-cells—are disseminated in the tissues of the body, and play a most important part in the morbid processes, some of them retaining their embryonic character.

The cells which exist in the fully developed human body may be enumerated in accordance with their form as follows: spheroidal, discoid, oval, irregular multinucleated, polygonal, fusiform, unipolar, bipolar, multipolar, cylindrical, and squamous cells. These cells, in a more or less modified state, exist in diseased tissues, or rather, in this altered state, constitute disease of most of these tissues. The morbid processes consist in alterations in the blood, disturbances in the circulatory apparatus, pathengenetic alterations of structure, retrograde metamorphoses, tumors (comprising neoplasmata, adenomata, cystomata, and blastomata), concretions, injuries, the lodgment of foreign bodies, parasitic invasion, monstrosities, and functional disorders.

To be abreast of the advances made toward a better knowledge of these morbid processes, and prior to the consideration of special diseases of particular urinary organs, an introspection of their general pathology will be conducted in accordance with the following division: 1, phlegmasic; 2, stenotic; 3, auxetic; 4, echmatic; 5, ectatic; 6, lithic; 7, neoplasmatic; 8, adenic; 9, blastomatic; 10, cystic; 11, entozoic; 12, toxic; 13, traumatic; 14, allotrylic; 15, teratic; and 16, functional affections of the urinary apparatus.

1. *The term phlegmasic affection* is intended to convey the idea of a morbid process, one of the local nutritional changes which, when visible and tangible, is ordinarily characterized by heat, redness, swelling, and pain, and which is now believed by many pathologists to be generally caused by microbic invasion.

Admitting that microbia generally constitute an important factor in the causation of phlegmasic action clearly implies that they are not invariably the exciting agents in this nutritional change. To what else, then, besides microbia, can phlegmasic action be attributed? It is well known that acute phlegmasic action very frequently becomes chronic or ends in sclerosis and contraction of tissues without suppuration, and that microbia are not found in these abnormal tissues. Further, that in certain deep-seated purulent collections microbia are not always found. Suppurative phlegmasia has been experimentally produced and no microbia found in the pus. Does not the explanation rest in the fact that individual human cells, like individual men, sicken, undergo nutritional alterations, or even starve to death, owing to insufficient pabulum or to its exclusion by the sudden plugging of a neighboring blood-vessel, and are cast away if there be a proper channel for their exit, otherwise they may be devoured by leucocytes or taken up as effete material and excreted? Are not some of the phenomena of amicrobic phlegmasia, such as the occurrence of rigors and febrile reaction, due to the effect of the animal alkaloids that so often result from tissue decay? Bio-chemists assert that one fifth of the normal human body is in a necrotic state and that man exists only by virtue of the metabolic action which is constantly going on in the organism; this death and regeneration of tissue being molecular, gradual, and continuous, and the effete material being eliminated by different apparatuses of the body. From interruption of this elimination and from inability of the human cell to resist the effect of certain infections, of injuries, or of poisons, doubtless arise many of the phlegmasiæ.

Of the several hypotheses respecting phlegmasic processes, the last, based on Cohnheim's illustration of the emigration of leucocytes, offered by Mr. J. Bland Sutton, seems the most rational.

The colorless blood-corpuscles, leucocytes, which are endowed with amœboid properties, constitute the most important of the factors of phlegmasic processes, and how they emerge through stomata in the walls of the capillary blood-vessels has been fully explained and demonstrated by Cohnheim and photographed by Woodward. Pathologists of to-day are disposed to regard phlegmasic processes as conservative, as having a tendency to repair such mischief as may be inflicted by foreign bodies, or by tissues that have died from want of adequate sustenance or from violence. The dead tissues or the foreign substances, be the latter micro-organisms, their ptomaines, or any other extraneous objects, as so well set forth by Mr. Sutton, are at once attacked by migrated leucocytes which strive to ingest and digest the offenders; but it sometimes happens that many of these leucocytes die in the struggle or are so numerous as to crowd themselves and the ambient tissues to death, and form what is called pus, and a slough. If, however, the leucocytes prevail in the struggle, resolution occurs. They undergo fatty degeneration, are absorbed by the lymphatics, and thus disappear, leaving the parts as nearly as can be in their former state. The leucocytes do not always undergo this fatty degeneration, but are sometimes transformed into scar tissue which tends to contract and cause shriveling of the surrounding parts.

In the case of phlegmasia of mucous membranes great numbers of leucocytes make their way from the subepithelial capillaries, and, by virtue of their amœboid properties, reach the surface of the membrane, by passing through stomata between the epithelial cells, to attack and devour foreign invaders, but find themselves in an unhabitable territory, and, like a disorganized mob, are scattered in all directions to perish and be cast away. This accounts for the abundant suppuration in phlegmasia of mucous membranes.

The phenomena of visible and tangible phlegmasia have been explained as follows: The heat is owing to increased tissue oxidation; the redness, to blood stasis; the swelling, to an exudate; and the pain, to mechanical pressure of nerve twigs by the exudate.

Phlegmasiæ are designated superacute when the phenomena of heat, redness, swelling, and pain are intensified in the highest degree; acute, when these phenomena are fully characterized, but of less intensity than in the superacute, both being of comparatively short duration; subacute, when the phenomena are not all apparent or are mild in character; and chronic, when, after the violence of superacute or acute phlegmasia has expended itself, resolution is very slow or indefinite. Though the chronic is ordinarily the continuance, in a mild form, of the superacute, acute, or subacute phlegmasia, it often begins without previous superacute, acute, or subacute phlegmasia, and the morbid process lasts an indefinite time.

Chronic phlegmasia is, therefore, a variation in degree rather than in kind, all the phenomena of the acute types existing, but in a lesser degree. Its designation chronic implies its quality of persistency.

In early times diseases were subdivided into subacute, lasting from twenty-one to forty days; acute, lasting fourteen days; sub-very-acute, lasting seven days; very acute or superacute, lasting two, three, or four days; and chronic, those which are prolonged beyond the fortieth day.

The expressions subacute, acute, and superacute phlegmasia now have reference to the intensity rather than, as formerly, to the duration of the affection.

The evolution of acute phlegmasiæ is characterized by four distinct stages or periods.

The first stage is called the period of incubation—the hatching, as it were, of the phlegmasia—the preparatory stage; it may last a few hours or several days. It begins at the moment of contagion—of the advent of a foreign intruder, or of whatever else may be the irritant, for an irritant is necessary to the development of phlegmasic action. In the beginning there is an increased afflux of blood to the part irritated. If the irritant is removed, the phlegmasic process is cut short almost at its inception. The word deliquescence may properly be used to express the idea of sudden cessation of phlegmasic action—its melting away. A good example of this is in the case of lodgment of a foreign body under the eyelid. In less than an hour there is congestion of blood in the conjunctival vessels and excessive lacrymation. If the foreign body is at once extracted, this congestion soon decreases and ceases in two or three hours. Another example is the entrance of a pudendal hair into the urethra, causing an almost intolerable itching and a free flow of mucus. Soon after the hair is removed the irritation is relieved and the mucous flow ceases. The penetration of the tissues by foreign bodies, be they organic or inorganic, gives rise to this afflux of blood and congestion necessary to the effusion of serum and the migratory process of the leucocytes. The incubation is then ended, the phlegmasia is hatched, and the second stage begins.

The second stage is called the period of increase. During this period, which lasts from two to six days, the four phenomena are manifested and become more and more intense. It is during this period of increase that the leucocytes are most active. A violent struggle goes on between them and the intruder until the phlegmasia has reached its highest point—its acme.

The third stage is called the static period—the acme. During this static period, which may last only a few hours, a day or two, or a week, the contest is decided either by resolution, by gangrene, or by suppuration.

The fourth stage, called the period of decline, lasts much longer than any of the former. The beginning of this stage is the beginning of resolution. The migrated leucocytes are victorious, but doomed to death soon after their victory, for resolution is effected by fatty degeneration of these leucocytes, which in that state are absorbed by the lymphatics. When resolution is incomplete the leucocytes do not all undergo fatty degeneration, but are transformed into scar tissue, or, there being still a source of irritation, newly migrated leucocytes reach the surface, die, and are discharged as pus, particularly in phlegmasia of mucous membranes.

When leucocytes have undergone fatty degeneration they sometimes are not absorbed, but undergo caseation and afterward calcareous infiltration, and even when they are organized into scar tissue this also occasionally undergoes calcareous infiltration. The calcareous mass is then encysted and thereby rendered innocuous. This calcareous infiltration, often erroneously called ossific transformation, occurs in the cavernous bodies of the penis, in the vaginal tunic of the testicle, and in other parts of the body.

When gangrene occurs, newly migrated leucocytes attack the dead part and tend to loosen it from the living tissues until it is cast away.

Phlegmasiæ of the urinary organs are engendered by general dyscrasiæ, by parasitic invasion (vegetable and animal), by other local irritants, by injuries, or by contagion, and in their turn engender local affections, such as stenoses, auxeses, echmases, ectases, etc., as well as functional disorders.

2. *A stenosis* is a contraction. This term is applied to contraction of hollow viscera or of ducts. Stenotic affections proceed generally from phlegmasic action, and are pathic conditions of hollow viscera and of excretory ducts, as in the cases of the permanently contracted bladder with diminution of its capacity, and of stenosis or stricture of the ureters and of the urethra. A stenotic affection may or may not be obstructive. Stenotic affections are sometimes congenital, sometimes traumatic, but are most frequently the offsprings of pre-existing morbid conditions, as, for instance, the stenosis of the bladder which springs from phlegmasia of that viscus, or the stenosis of the urethra resulting from urethritis.

In stenosis of the bladder there is not only permanent contracture of the muscular layers, but sclerosis of the submucous connective tissue. In many cases there is augmentation of the muscular element, and consequently general thickening of the walls of the viscus. This condition may be properly classed with that of diffuse myomata.

In idiopathic stenosis of the urethra there is not a mass of inodular tissue, as was formerly supposed, but a layer of scar tissue of extreme tenuity, this scar tissue resulting from a local slow retrograde metamorphosis, a condition of sclerosis, tending to progressive contraction of the imperfectly organized plasma of circumscribed acute or of chronic urethral phlegmasia. This imperfect organization is, in part, owing to the obstruction of blood and lymph capillaries by the mechanical compression exerted by the leucocytes of the plasma. The sclerosis may involve the mucous membrane, the submucous connective tissue, the spongy substance, or all three layers. In traumatic stenosis a similar condition exists, but is developed with much greater rapidity, the scar tissue contracting as quickly as that resulting from burns. In idiopathic as well as in traumatic urethral stenosis, therefore, it may be confidently asserted that there is nothing to be absorbed, but rather that there is need of regeneration of tissue, and to promote such regeneration the surgeon makes an artificial gap in the urethra by divulsion, or by incision of the constricted part, which Nature fills and thus splices with new cicatricial tissue.

3. *An auxesis* is an enlargement. Auxetic affections of the urinary organs are states of enlargement which generally interfere, in varying degrees, with the uses of these organs, and are the outcome of phlegmasic, echmatic, neoplasmatic, adenic, cystic, or traumatic affections. However, auxetic action is sometimes beneficent, occurring when one of a pair of organs is destroyed, as in the case of loss of one kidney, the remaining kidney undergoing compensatory auxesis sufficient to enable it to excrete more than when its fellow was sound. Here nephrauxe is the reverse of a pathic condition. Prostatauxe, on the contrary, arises from pathic states of the prostate itself, and is often the cause of grave disturbance in urination.

4. *An echmasis* is an obstruction. Echmatic affections of the urinary apparatus are states of obstruction of excretory ducts arising from acute phlegmasic swelling, from stenoses, from neoplasmata, or from impaction of uroliths or of foreign bodies. Acute prostatitis causes echmasis of the urethra and urethro-vesical orifice, and, consequently, retention of urine. Narrow urethral stenoses give rise to sufficient echmasis of the urethra to cause its dilatation behind the seat of disease. Neoplasmata of the prostate, with unequal enlargement of its lobes, cause urethral or urethrovesical echmasis. Impaction of uroliths in the ureter causes echmasis of this excretory duct and consequent retention of urine, inflammation, and ectasis of the renal pelvis. Foreign bodies in the urethra cause echmasis and retention of urine. Long-continued echmasis, even when incomplete, causes permanent ectasis and chronic inflammation behind the point of obstruction, and, in many cases, destruction of the upper urinary organs and death.

5. *An ectasis* is an expansion. This term is applied to expansion of hollow viscera and of canals. Ectatic affections are conditions of expansion, of dilatation, of hollow viscera, of excretory ducts, of lymphatic and blood vessels, or of serous cavities. Ectatic affections are due to phlegmasic action, or to echmasis from disease, injury, or the lodgment of foreign bodies. Morbid dilatation of the blad-

der, local or general, belongs to the order of ectatic affections. Hydronephrosis and pyonephrosis are ectatic conditions of the renal pelves. The accumulation of serum in the tunica vaginalis testis causes ectasia of this vaginal tunic.

6. *Lithic affections* are produced by the development of concretions, varying greatly in density, form, and size, in crypts, ducts, or cavities of the human body. Those now under consideration are the uroliths and prostatoliths.

Uroliths are concretions formed from the salts of the urine around nuclei which, from their irritating contact, excite a copious flow of tenacious mucus, serving as a cement to the crystalline or to the amorphous salts of which they are composed. Prostatoliths are concretions originating in the crypts of the prostate.

Lithic affections of the urinary organs should be studied under the following heads: Those caused by uroliths of diathetic origin, those caused by uroliths of accidental origin, and those caused by prostatoliths.

The uroliths of diathetic origin are due to hyperlithuria, caused by disturbances in the nutritive function.

The uroliths of accidental origin are due to stagnation of urine, to tumors of the bladder, to injuries, or to the presence of foreign bodies.

Prostatoliths are due to the death of sympexia, which exist normally in the prostatic crypts, and to their gradual increase in size by phosphatic incrustation.

7. *Neoplasmata* are tumors formed by cell proliferation. Neoplasmatic affections of the urinary organs comprise epithelial and endothelial neoplasms and myoneoplasmata and angeioneoplasmata.

The epithelial neoplasmata are the polymorpho-cellular, the cylindro-cellular, and the squamo-cellular. The first two, derived from both the epiblasts and hypoblasts, contain fibrous tissue and are malignant. The third species contains no fibrous tissue, but is also malignant. The lower the grade of structure, the greater the malignity. These species have their varieties and subvarieties, the presence of more or less fibrous tissue constituting the variations in the first two species, as ino-epithelioma (medullary cancer) and hyperino-epithelioma (scirrhous cancer). The subvarieties are the papillary and the teleangeiectatic (fungous hæmatodes). The third species, squamo-cellular (epithelioma), derived from the epiblast, has two varieties, myxoid and keratoid; and one subvariety, papillary.

The idea that epitheliomata are provoked by microbic invasion has been enunciated by several bacteriologists, and a few years ago a German bacteriologist announced the discovery of a cancer bacillus, but other bacteriologists have so far failed to find a specific organism in cancer.

"The term cancer," says Mr. Sutton, "in the present day is restricted to tumors resembling formed glands. . . . Cancers are aberrant glandular formations, and may not inaptly be defined as biological weeds. . . . The glandular nature of cancers is further illustrated by the fact that in their intimate structure they resemble the glands in the immediate neighborhood. Thus, a cancer of the lip resembles the cutaneous glands; in the liver it mimics the liver; mammary cancer resembles imperfectly the secreting tissue of the breast, and so forth. Cancers are downward growths of epithelium into the subjacent tissues."

Endothelial neoplasmata, which are among the mesoblastic new growths, are ranked with desmoneoplasmata, from their elements being embryonic states of the different forms of connective tissue.

The endothelial neoplasmata of the urinary organs are endothelioma, inoma, and myxoma.

The genus endothelioma (sarcoma or endothelial cancer) has four species, the globo-cellular, the fuso-cellular, the giganto-cellular, and the plano-cellular (flat-celled sarcoma or endothelioma). Only the first three occur in the urinary organs. The globo-cellular, small and large celled (round-celled sarcoma), has five varieties, only two of which occur in the urinary organs—ino-endothelioma (round-celled fibro-sarcoma), and myxo-endothelioma (round-celled myxo-sarcoma); and two subvarieties—papillary and teleangeiectatic. The fuso-cellular, small and large celled (spindle-celled sarcoma), has the same varieties and subvarieties as the first species. The giganto-cellular (giant-celled sarcoma) has the same varieties and subvarieties as the first and second species.

Mr. Sutton places the sarcomata among infective tumors caused by micro-organisms, and says: "Those tumors which pathologists term sarcomata differ from those produced by the ray fungus in the following particulars: The micro-organism or causative agent has not yet been isolated, and we have no satisfactory evidence that a sarcoma can be inoculated into another animal. Nevertheless, the two forms of tumors agree in the general principle of structure, disastrous effects upon the life of the individual, and in a tendency to infect the system. Careful research will probably establish before very long a poison or micro-organism for each of the various types of sarcoma." He is inclined to believe that these tumors are the products of phlegmasic action, due to microbic invasion, and further says: "To put the matter in a clear form, a sarcoma is probably the scene of action of a violent and prolonged conflict between irritant micro-organisms and leucocytes. I say probably, because, as has been already remarked, bacteriologists have not yet succeeded in isolating a special bacterium for sarcomata in general; that such agents will soon be discovered is in the highest degree probable, because in recent years each increase in the list of infective granulomata is made at the expense of sarcomata. The structure, mode of growth, infective properties, and manner in which these tumors destroy life clearly coincide with what is positively known with regard to infective granulomata. The fact that sarcomata make up the greater part of tumors occurring in wild and domesticated animals has, in my opinion, a very significant import in this relation."

Assuming these views of Mr. Sutton to be correct, they do not necessarily affect the classification just given of sarcomata, which remain endothelial growths, whatever may be their cause.

The genus inoma (benign) has two subgenera—circumscribed inoma and diffuse inoma. These two subgenera have two species—the plano-cellular and the fasciculated. Each species has five varieties, of which the first and second occur in the urinary organs—viz.: endothelio-inoma (malignant) and myxo-inoma (benign), the subvarieties being the papillary and teleangeiectatic.

The genus myxoma has two species—the monomorpho-cellular and the polymorpho-cellular. The two species have three varieties—endothelio-myxoma (malignant), ino-myxoma and lipo-myxoma (both benign), and two subvarieties—the papillary and telcangeiectatic.

A myoneoplasma is a new growth of muscular fibers, and therefore of mesoblastic origin.

The order myoneoplasmata has one genus, myoma; two subgenera, circumscribed myoma, diffuse myoma; and two species, rhabdomyoma, leiomyoma (all benign), each species having two varieties, inorrhabdomyoma or inoleiomyoma, circumscribed or diffuse, as the case may be, and endothe-liorrhabdomyoma or endotheliolciomyoma, generally called myosarcoma (malignant).

If Mr. Sutton's interpretation of the nature of sarcomata is correct, then, when the sarcomatous element constitutes subvarieties of neoplasmata, these previously benign neoplasmata are rendered malignant by the invasion of micro-organisms which are combated by migrated leucocytes.

Angeioneoplasmata are tumors made up of blood or lymph vessels, and are of mesoblastic derivation.

The order angeioneoplasmata has one genus, angeioma; two species, hæmatangeioma and lymphangeioma; and two varieties, cirsoid and cavernous (all benign).

8. *The adenomata* constitute a class of tumors having the same structure as the glands in which they occur. This structure is, however, imperfectly elaborated, is characterized by epithelial hyperplasia, and tends to metamorphosis into malignant epithelioma, which occurs as soon as the cells have broken the barrier opposed to them by the limiting membrane of the acini.

This class has two orders, ectocœliac and entocœliac adenomata. The first order has four and the second order six genera, each generic name indicating the gland affected. Only three of the entocœliac adenomata occur in connection with the urinary apparatus: lymphadenoma (adenoma of a lymphatic gland), nephradenoma (adenoma of the kidney), and myxadenoma (adenoma of mucous glands).

Mr. Sutton, who recognizes the existence of adenomata in the sense in which the term is used above, admits their liability to be transformed into cancers. The following are his comments on the subject:

"In young individuals we find occasionally in connection with a functional gland a tumor which, when examined microscopically, displays all the features peculiar to the gland with which it was connected; the only point in which it differs is that the adventitious mass is impotent—that is, it can not produce the secretion peculiar to the gland from which it arose. Such a tumor is called an adenoma, and receives a specific name according to the gland it resembles—sebaceous, mammary, renal, hepatic, etc. Adenomata may attain enormous size and weigh many pounds. As life advances the mimicry is crude; the cells, instead of clothing the alveoli in a regular manner, are tumbled together in confusion. Such tumors are cancers; they grow aimlessly, having no function to keep them in subjection, and, being poorly supplied with blood-vessels, undergo degenerative changes, and the cells, being dispersed over the body, may reproduce, in remote tissues and organs, secondary tumors resembling the original cancer from which they arose."

9. *Blastomata* are infective granulation growths invaded by micro-organisms.

The blastomata that affect the urinary organs are the syphilitic, syphiloid, and tuberculous.

Syphilis is a toxæmia caused by a virus deposited upon an abraded cutaneous or mucous surface and absorbed into the organism; it is therefore a general dyscrasia. It is due to immediate as well as to mediate contagion, and the nature of its virus is still an unsettled question. By some investigators it is regarded as a microbic affection. If this view is correct, a ptomaine of syphilis will be the next discovery.

The initial lesion of syphilis is at the seat of inoculation and appears as a sclerosed spot called chancre.

Syphilis is often transmitted from parent to offspring, and in that case is generally designated as hereditary.

Lustgarten thinks he has discovered a bacillus peculiar to syphilis, and the same view is taken by Doutrelepont, but other investigators do not confirm this view. However, there is no doubt of the presence of sundry micro-organisms in syphilis as in the other blastomata, whose granulation tissue affords them abundant sustenance, for the microbia are known to thrive in structures of low vitality. In unclean subjects, saprophytic organisms swarm in chancres and other kindred lesions.

Syphiloid (chancroid or soft chancre) is contagious, but does not infect the whole system, as syphilis does. The nature of the contagium of syphiloid is unknown. Syphiloid ulcers are infested with saprophytic micro-organisms which in themselves are not poisonous. Syphiloid is contagious, both mediately and immediately, but without the long period of incubation, such as occurs in syphilis, the lesion showing itself within forty-eight hours after contact with denuded skin or mucous membrane.

Tuberculosis is now believed to be due to infection by a micro-organism named, in 1882, by Koch, the tubercle bacillus. This microzyme is supposed to enter the human organism through the respiratory, the digestive, the genital, or the urinary organs, as well as through abrasions or wounds of external parts, the most common inlet being the respiratory apparatus. By modern pathologists tuberculosis is regarded as a phlegmasic process, which they explain as follows: As soon as the tubercle bacilli effect lodgment in the tissues their irritating presence causes, in the ambient capillaries, an increased afflux of blood. These capillaries are thereby dilated, and the stomata at the junction of endothelial cells allow the leucocytes, by a temporary alteration of form, to effect their exit. Thus begin their migration and their warfare with the bacilli which they ingest and digest. If victorious, the conflict is ended and resolution occurs. If the leucocytes are not able to cope with a large aggregation of bacilli, they sometimes operate its eucystment by their own conversion into scar tissue. If the bacilli are too numerous, the leucocytes perish and suppuration ensues. The infection then becomes general and the sufferer succumbs. The presence of giant cells in tubercles is explained by the coalescence of numbers of leucocytes.

10. *Cysts* are inclosed spaces whose contents, fluid or solid, are circumscribed by fibrous tissue, or some other more or less complex structure, with or without a lining of epithelium, according to their genesis. There are five orders of cysts—epithelial, endothelial, degeneration, parasitic, and teratic cysts, among which are the dermoid.

The epithelial cysts occur in crypts or ducts lined with epithelium, and are due to the occlusion of a duct, and consequent retention and accumulation of glandular secretion. Epithelial cysts contain more or less cast-off epithelium, sometimes plates of cholesterin, and the fluid and the solids of the particular secretion, and accidentally blood. Their variations of size are extreme.

The endothelial are exudation cysts formed in connective-tissue spaces, in false membranes, and in obstructed lymphatics. Their contents are ordinarily lymph, and accidentally blood is superadded. They are often called hygromata.

The degeneration cysts result from a necrotic process in the substance of organs, and often of neoplasmata, and their contents are the products of disintegration of the structure of the organ or neoplasma. Some degeneration cysts have fibroid walls, resulting from the conversion of surrounding leucocytes into scar tissue for the protection of adjacent parts. The encystment of tubercular nodules, of foreign bodies—such as bullets, fragments of glass or pottery, of needles, etc.—of clots of blood, of cheesy nodules, etc., is effected in this manner to render them innocuous. Parasites, and certain monstrosities, in like manner and for the same purpose, undergo encystment.

11. *Entozoic parasites* are animals living within and at the expense of the body.

The entozoic parasites that invade the urinary organs are the *Echinococcus hominis*, the *Distoma hæmatobium*, the *Pentastoma denticulatum*, and the *Strongylus gigas*. *Filaria sanguinis* and *Trichina spiralis* have been found in the urine.

These entozoa reach the human organism principally through food or water polluted by animals that are infested with these parasites.

Worms, such as lumbrici, or joints of tænia, have passed from the intestine into the bladder and have been found in the urine. They should not be ranked as parasites of the urinary organs, since they enter the bladder through fistulous tracts. In young female subjects, pin-worms, infesting the rectum, have been known to make their way to the vulva, and finally to creep into the bladder through the urethra. In both cases these are designated as erratic worms.

Larvæ of flies, introduced into the bladder, accidentally and sometimes designedly, have been mistaken for parasites. These are classed as spurious worms. The *Spiroptera hominis*, *Diplosoma crenatum*, and *Dactylius aculeatus* are among the spurious worms.

12. *Poisons* are substances, either organic or inorganic, which, when introduced into the system by the cutaneous, respiratory, or digestive apparatus, are capable of producing disease or death.

Some poisons are very irritating to the urinary tract, and even cause structural disease.

Many of the medicinal drugs, when taken in large doses or when used for a long time, act noxiously upon the urinary organs, particularly those that are freely eliminated by the kidneys.

Besides the ptomainic poisons derived from bacterial action, there are other virulent poisons to which the name of leucomaines has been given and which originate in the animal economy from tissue disintegration without the agency of bacteria. These leucomainic poisons cause diseases which have been named autogenous, and the nature and course of which are daily becoming better known and interpreted, thanks to the labors of the bio-chemists.

13. *Traumatic affections* are hurts caused by violence. But the use of this term is generally extended to designate structural violence inflicted otherwise than by a wound. The injury may be effected directly or indirectly by the fracture of a bone, by contusion, puncture, perforation, incision, laceration, crunching, cauterization, or congelation.

14. *Allotrylic affections* are morbid states caused by the lodgment of foreign substances in the organism. The foreign substances may be animate or inanimate, organic or inorganic.

A foreign substance may enter the urinary tract by the natural route, or by an artificial route resulting from disease or from violence.

15. *Teratic affections* are congenital or acquired deviations from the essential characteristics of organized beings.

The adjective teratic is from τέρας, a wonder, a marvel, a monster, and monster from *monstrum*, from *monstrare*, to show. Therefore teratism or monstrosity is properly applied to any anomaly of conformation, whether congenital or acquired from disease or injury. It is something out of the ordinary type, marvelous and to gaze at.

The nature of monstrosities can be well understood only after adequate study of the earliest stages of the development of organized beings, beginning with the fecundated ovule referred to at the opening of this conference.

The human ovule is subject to sundry freaks, just as is the case in that of the lower animals and in vegetable seeds, and in it is to be detected the point of departure of some anomalies which are found in the embryo and in the fully developed being.

The congenital monstrosities are vices of primary conformation, and may be classed as follows:

1. The ectrogenic: Those monstrosities in which are absent or defective certain parts belonging to the normal body. For example, the absence of one kidney, the absence of one or both testicles, the absence of the external urogenital organs, etc.

2. The symphysic: Those monstrosities produced by fusion or coalition of organs, such as the kidneys.

3. The ceasmic: Those monstrosities in which the parts that should be united remain in their primitive fissured state, as hypospadias and epispadias.

4. The atresic: Those monstrosities in which natural openings are occluded, as imperforate urethra.

5. The hypergenetic: Those monstrosities in which cer-

tain parts are disproportionately large, such as the penis, the testicles, etc.

6. The ectopic: Those monstrosities in which one or more than one part may be abnormally placed, such as a kidney or both kidneys, a testicle or both testicles.

7. The hermaphroditic: Those monstrosities in which organs of both sexes exist.

The acquired monstrosities are the outcome of disease, of violence, or of operations necessitated by diseased conditions or injuries, and may be classed as follows:

1. The ectrogenic: Those monstrosities caused by the loss of some part from disease, injury, or operation.

2. The symphysic: Those monstrosities produced by the fusion of parts from disease, injury, or operation.

3. The ceasmic: Those monstrosities in which a cleft results from disease, injury, or operation.

4. The atresic: Those monstrosities in which natural openings are occluded from disease, injury, or operation.

5. The hypergenetic: Those monstrosities in which certain parts are inordinately enlarged by disease.

6. The ectopic: Those monstrosities in which a part is displaced by disease or injury.

16. *Functional disorders* are disturbances of the function of an apparatus due to coincident structural change in at least one organ of this or sometimes of another apparatus of the body. Functional disorders, in their turn, often give rise to structural disease.

The function of the urinary apparatus may be disordered by (1) perversion, (2) deficiency, (3) suspension, (4) excess, (5) diminution, (6) abolition.

1. *Perversion* of function is exemplified by glycosuria, albuminuria, peptonuria, chyluria, lipuria, hæmoglobinuria, hæmaturia, pyuria, pneumaturia.

2. *Deficiency* of function is exemplified by dysuresis (difficult urination), ascheturesis (irrepressible urination), aconuresis (involuntary urination).

3. *Suspension* of function is exemplified by ischuria, the consequences of which are often ectasia of the ureters, bladder, or urethra; cystitis; rupture of the urethra and extravasation of urine; urinary fistulæ; or rupture of the bladder.

4. *Excess* of function is exemplified by hyperlithuria, polyuria, sychnuresis (frequent urination).

5. *Diminution* of function is exemplified by oliguria.

6. *Abolition* of function is exemplified by anuria.

INFLUENCE OF THE CARBOHYDRATES ON PROTEID CATABOLISM,

WITH SPECIAL REFERENCE TO DIABETES.

*AN ABSTRACT.**

By GRAHAM LUSK, PH. D.,
INSTRUCTOR IN PHYSIOLOGY, YALE MEDICAL SCHOOL.

PROFESSORS PETTENKOFER and Voit, after investigations made some twenty-five years ago, showed that the ordinary mixed diet fully capable of sustaining a strong working man weighing one hundred and fifty-six pounds (seventy-one kilogrammes) was incapable of properly nourishing a person suffering from diabetes who weighed but one hundred and nineteen pounds (fifty-four kilogrammes). The latter continually lost flesh and fat, and consumed less oxygen and exhaled less carbonic acid than the normal man.

In the light of more recent physiological research, Professor Voit, in his book, *Die Physiologie des allgemeinen Stoffwechsels und der Ernährung*, asks if these changes can not be traced to the non-decomposition of the carbohydrates and their emission in the urine. Professor Voit considered it important to prove whether the wasting away of the flesh and fat in diabetes was alone dependent upon the non-burning of the carbohydrates, or whether, as in fever or phosphorus poisoning, it depended upon a radical change in the cells and in the tissues. If this wasting away be due to the non-burning of the carbohydrates, then a normal person and a diabetic patient of similar bodily construction fed upon albuminoids and fat without carbohydrates should require exactly the same quantity of these two foods. And, further, a person in normal health, on leaving out the carbohydrates from his usual mixed diet, should show a wasting away of flesh and fat similar to that exhibited by the diabetic patient.

Experiments to prove the truth of this latter statement were made by the writer upon himself. His weight at the time was one hundred and thirty-four pounds (sixty-one kilogrammes). The daily quantity of nitrogen in the urine by his usual diet (taking the average of four days) was 14·76 grammes. Adding 2·3 grammes for nitrogen in the fæces, we have an average daily excretion of 17·06 grammes of nitrogen, which is equivalent to the destruction of 107 grammes of dried albumin.

Experiment I.—The procedure consisted in taking for three days the same diet of albuminoids, fat, and carbohydrates, and determining the amount of nitrogen excreted in the urine and fæces, and then taking for the following three days the same quantity of albuminoids and fat without the carbohydrates, and determining the nitrogen excreted under these altered circumstances. The food for the first three days consisted of lean meat, 300 grammes; zwieback, 500 grammes; milk, 200 c. c.; butter, 50 grammes; cane sugar, 21·4 grammes; meat extract, 2 grammes; coffee made from 28·4 grammes grounds; and wine, 500 c. c. This food contained—

Nitrogen..... 20·549 grammes = albumin, 128·44 grammes.
Fat.......... 58·54 "
Carbohydrates 357·37 "

When, after the first three days, the carbohydrates (zwieback and cane sugar) were left out of the food, 74·7 grammes of a bread made from gluten was eaten daily in order to exactly replace the amount of nitrogen contained in the zwieback. The food then contained—

Nitrogen..... 20·549 grammes = albumin, 128·44 grammes.
Fat.......... 58·54 "
Carbohydrates 10·8 "

The fæces of the first three days contained 4·438 grammes of fat and 0·382 grammes of carbohydrates. For the last three days there were 5·819 grammes of fat.

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* Ueber den Einfluss der Kohlenhydraten auf dem Eiweisserfall. Von Graham Lusk. (Aus dem physiologischen Institut zu München.) Zeitschrift für Biologie, vol. xxvii, p. 459.

The analyses of the excreta gave the following results:

	N in food.	N in urine.	N in fæces.	Total.	Difference.
With carbohydrates:					
For the three days........	61·647	55·466	4·045	59·511	+2·136
Average per day....... ..	20·549	18·489	1·348	19·837	+0·712
Without carbohydrates:					
For the three days........	61·647	74·827	2·965	77·792	−16·145
Average per day..........	20·549	24·942	0·988	25·930	−5·381
Average for 2d and 3d days.	20·549	26·017	0·988	27·005	−6·456

After the carbohydrates in the food were set aside, their influence was still appreciable during the day following. Hence, for comparison, the first three days and the last two should be taken. It is apparent that 0·712 grammes of nitrogen (= 4·45 grammes of albumin) was daily gained by the body during the first three days, and 6·456 grammes of nitrogen (= 40·350 grammes of albumin) daily lost by the body during the last two. Hence, when 128 grammes of albumin are taken in the food, the leaving out of 357 grammes of carbohydrates produces an increase in the decomposition of albumin equal to 44·8 grammes.

Experiment II.—Here the food was much the same as in Experiment I, but the albuminoid material less. For two days the food consisted of zwieback, 500 grammes; butter, 50 grammes; cane sugar, 20 grammes; meat extract, 4 grammes; coffee from 28·4 grammes grounds; and wine, 500 c. c. The food contained—

Nitrogen..... 9·230 grammes = albumin, 57·69 grammes.
Fat.......... 50·0 "
Carbohydrates 347·8 "

Then for the two following days the carbohydrates were left out, and 76·8 grammes of gluten bread were taken in the stead of the albuminoids in the zwieback, as in Experiment I. This food contained—

Nitrogen..... 9·230 grammes = albumin, 57·69 grammes.
Fat.......... 50·0 "
Carbohydrates 2·8 "

The analyses of the excreta during the experiment gave the following results:

	N in food.	N in urine.	N in fæces.	Total.	Difference.
With carbohydrates:					
For two days.............	18·460	24·294	3·276	27·570	−9·110
Average per day..........	9·230	12·147	1·638	13·785	−4·550
Second day...............	9·230	11·444	1·638	13·082	−3·852
Without carbohydrates:					
For two days.............	18·460	29·298	2·316	31·614	−13·154
Average per day.	9·230	14·649	1·158	15·807	−6·577
Second day...............	9·230	16·027	1·158	17·185	−7·955

The fæces of the first two days contained 6·532 grammes of fat and 0 611 gramme of carbohydrates; for the last two days, 4·193 grammes of fat.

It will be observed that the eating of 57·69 grammes of albuminoid material was not sufficient to maintain the nitrogen equilibrium of the body, but that on the second day (when the body was fully under the influence of the diet) the amount of nitrogen lost from the body was 3·852 grammes, corresponding to the decomposition of 24·074 grammes of albumin. Now, after the setting aside of the carbohydrates (on the second day) there is a loss to the body of 7·955 grammes of nitrogen, equal to a decomposition of 49·719 grammes of albumin. Hence, when 57·67 grammes of albumin are taken in the food, the leaving out of 345 grammes of carbohydrates produces an increase in the decomposition of albumin equal to 25·645 grammes.

From this series of experiments it is clear that the omission of the carbohydrates in the food brings about a marked increase in the proteid decomposition; the burning carbohydrates serve to protect a certain amount of proteid matter. It has been shown by M. Rubner, in Professor Voit's laboratory, that the omission of the carbohydrates always produces a relative increase in the decomposition of the body's fat. In other words, a certain amount of non-nitrogenous matter must always be burned with the nitrogenous, in order to fulfill the conditions necessary for the catabolism in the cells and in the tissues. When the sugars are not burned, fat is attacked. Two hundred and twenty-nine grammes of starch are in this relation the equivalent of 100 grammes of fat. Hence, on leaving out the 357 or 348 grammes of carbohydrates in the above investigations, fat must have been burned in the body to the amount of 156 or 152 grammes.

Pettenkofer and Voit, in their former investigations on the diabetic patient in comparison with the healthy individual, have shown the following results when an ordinary mixed diet was taken. The food in each case was the same:

	Albumin.	Fat.	Carbohydrates.
Diabetic patient:			
In the food...............	137	117	352
Destroyed................	188	192	464 sugar in urine.
Change in the body........	−51	—84	....
Healthy workman:			
In the food...............	137	117	352
Destroyed................	137	72	352
Change in the body........	....	+29	....
Weak but healthy man:			
In the food...............	137	117	352
Destroyed................	137	....	352
Change on the body........	....	+118	....

The above-mentioned loss of fifty-one grammes of albumin by the diabetic patient is easily explained by the large excretion of sugar in the urine. For, in my experiments, when the carbohydrates were discontinued, there was a loss from the body of forty-five grammes of albuminoid matter on a diet of one hundred and twenty-eight grammes, and a loss of twenty-six grammes on a diet of fifty-eight grammes. It seems, therefore, in the highest degree probable that the non-burning of the carbohydrates is the cause of the great loss of flesh in diabetes.

The statement made by Pettenkofer and Voit that the diabetic patient consumes less oxygen and exhales less carbonic acid than the normal man has been found to be an error, arising from the fact that the persons compared were of different conditions bodily. When, however, the patient and healthy person are equal in weight and other bodily attributes, the amount of inhaled oxygen is the same, and what is used in health to burn the sugars is, in the case of diabetes, used in the destruction of fat. That the amount of inhaled oxygen and exhaled carbonic acid are the same is further shown by the fact that the heat units produced to a square metre of surface on both patient and healthy person are equal under similar conditions of diet.

Conclusion.—Those wishing further details and proofs are referred to the original article, but it is clear from the foregoing that all the constitutional changes in diabetes can be attributed to the non-destruction of the carbohydrates. The diabetic patient loses flesh because the albumin-protecting property of the burning carbohydrates is eliminated, and loses fat because an amount of fat is burned equivalent to the sugar burned in the healthy person, and he inhales the same amount of oxygen and exhales the same amount of carbonic acid as the normal man under similar conditions.

It is my wish to gratefully express my obligations to Professor Voit for his every help and suggestion.

TWO CASES OF APPENDICITIS.

OPERATION; DEATH.

By JAMES KENNEDY, M. D.,
SAN ANTONIO, TEXAS.

Contrary to the prevailing custom, I propose to place upon record two cases of appendicitis in which operation for the removal of the appendix was performed and death ensued. I believe that it is as much our duty to report unsuccessful cases as those in which brilliant results have been achieved. Our successes are no more reliable evidence of our superior skill than our failures are proof of the lack of it. So long as successful cases only are reported, just so long will statistics remain misleading and valueless.

Case I.—The first case which I will report is that of a colored girl, twenty years of age, with the history of having had an attack similar to the one which I was called in to treat just one year previous to this one. The attack lasted about two weeks, during which time she suffered intense pain in the right iliac fossa. After her recovery she experienced occasional sharp pains in this region which were of momentary duration.

At the time I was consulted she presented the following symptoms: Intense pain in the abdomen, particularly in the right iliac fossa, which was exquisitely tender on pressure; furred tongue; temperature, 104° F.; bowels constipated; anorexia and nausea. The abdominal muscles were rigidly contracted, and entire abdomen was tender and painful. She had been suffering in this way constantly for four days before I was sent for, and for four days and nights she had not slept any on account of the pain. After the hypodermic use of morphine, and unloading the bowels by means of copious enemata of warm water, the abdominal muscles relaxed and I was able to make a more satisfactory examination, and mapped out a tumor in the region of the cæcum, and detected fluctuation. The temperature —which had been 104° F., under the influence of full doses of quinine sank to 100° F., and remained at this for a couple of days, during which time the patient seemed much improved—now suddenly rose to 103° F., having been preceded by a rigor.

I diagnosticated a perityphlitic abscess, and was corroborated by my colleague, Dr. Russell Caffery. Operation was proposed to the patient and relatives, but was promptly declined by the latter, although greatly favored by the sufferer. Twenty-four hours later, however, they gave their consent, because the patient's condition had become infinitely worse.

As soon as the peritonæum was reached it was found firmly adherent, and as soon as the cavity was opened the abscess was found, with a wall so thin and weak that it ruptured at the slightest touch of the finger and discharged about a pint or more of foul-smelling pus.

A little round body of firm consistence escaped with the pus, which, on being washed and examined, appeared to be composed of hardened fæcal matter, and on section was found to have a pronounced fæcal odor.

The appendix was found clinging to the cæcum by a mere shred of tissue, having separated itself by sloughing.

The gut was covered by a plastic exudate almost half an inch in thickness, and numerous adhesions, both old and recent, were found.

The peritonæum was intensely injected, and as much of it as could be seen had actively participated in the inflammatory process.

The only points relative to the operation which I need mention are: that after the peritoneal cavity had been opened and the pus evacuated, the appendix was tied off close to the gut (it had sloughed through its middle) and removed. The masses of exudate were removed as well as the shreds formed by adhesions that were sloughing.

The cavity was thoroughly washed out with a solution of bichloride of mercury (1 to 30,000). A drainage-tube was introduced, the peritonæum stitched with catgut, and the parietal wound closed with silver wire.

The patient rapidly recovered from the anæsthetic and got on comfortably for about six hours, during which time the temperature remained normal (having fallen to that point during the operation).

The temperature gradually rose to 103° F., and the patient sank steadily and died just twelve hours after the operation.

Case II.—The second case was that of a boy, seven years of age, who was suddenly seized with an attack of vomiting and great pain in the hypogastrium. I saw the patient on the second day of his illness and noted the following symptoms: Temperature, 102° F.; tongue furred; severe intermitting pain, cramp-like in character, in the bowels; abdominal muscles rigidly contracted; abdomen tender to pressure; tenderness greatest over the appendix. On the third day a tumor of small size was distinguishable by palpation in the right iliac fossa.

By close questioning it was ascertained that the boy had fallen from a tree a month previously, receiving the violence upon his right side, and complained of pain in his abdomen, locating the pain in the right iliac region, which continued for about two weeks, but caused no serious inconvenience, and but little attention was paid to it. I further learned that three days before he became ill, patient swallowed a good-sized bird-shot, and on the very day he was taken down had regaled himself with green peaches.

The temperature fluctuated between 101·5° F. and normal until the sixth day, when it suddenly rose to 103° F., and, although the bowels were emptied, the tumor seemed to gradually increase in size.

A diagnosis of appendicitis with formation of abscess was made and confirmed by my colleague, and operation was decided upon. But the consent of the parents was not obtained until two days later, when the inflammation had extensively involved the peritonæum, as was shown when exposed by incision.

A striking feature of this case was the extraordinary length of the appendix, which measured fully six inches. It was, of course, very much thickened on account of the inflammatory process, and measured from a half to one inch through its thickness.

About two inches from its origin it had separated by sloughing. It was bound throughout its entire length to the gut, as well as to the abdominal parietes.

The adhesions were numerous and very firm. The tumor that was felt consisted of the inflamed appendix and cæcum (the walls of which were very much thickened) and a small quantity of pus (about four ounces).

The adhesions were numerous and some of them very firm, indicating that they were not of recent formation. The cæcum, the ascending colon, and the ileum were covered by the plastic exudate of which the adhesions were formed; the cæcum and colon particularly were covered by masses of this material measuring a half to three fourths of an inch in thickness.

The appendix was carefully separated from the gut (to which it was firmly adherent) by cutting the adhesions. The stump remaining attached to the cæcum was ligatured and the necrosed end excised. The abdomen was washed out and closed as in the preceding case.

When the patient recovered from anæsthesia his temperature, which had been 99·8° F. at the beginning of the operation, was now found to be 98° F. He remained conscious and comfortable for about six hours, when his temperature went up to 100·2° F., and he became delirious. Delirium alternated with normal consciousness for twelve hours and the temperature fluctuated between 99° F. and 101·8° F., the fluctuation being caused by iced applications to the abdomen, when the patient died, just eighteen hours after the operation.

Hypodermics of morphine to control the pain, both before and after the operation, and whisky after the operation, when the heart showed signs of failing, were used in both cases.

I neglected until now to state that the shot was discharged in the fæces the day before the operation, and that a seed resembling that of a musk-melon was found in the pus evacuated by incision.

There is no doubt that in each of these cases the appendix had been involved in an inflammatory process previous to the one which terminated fatally. Both the history and appearances of the viscus indicated this.

Whether or no the scybalum found in the appendix of the woman operated upon was the cause of the first attack from which she suffered it is impossible to state, although I consider it as very unlikely. It is more probable that whatever the course may have been, it disappeared, and with it a subsidence of the symptoms, which were recalled by the body found entering the appendix.

In the case of the boy it seems rather clear that the fall which he received produced an inflammation which resulted in the formation of the firm adhesions which were found binding the appendix as already described. Whether the musk-melon seed was there at that time, and by its presence contributed to the process, we do not know. It seems quite probable that, although the shot was not found in the appendix (having been passed previously), it was the means of relighting the inflammation which terminated fatally.

If operation had been resorted to in the case of the first patient during the first attack from which she seems to have suffered, or even at an earlier stage of the last attack, the result might, and probably would, have been different; and in the case of the boy there is no doubt that early operation would have materially increased his chances for recovery.

If an operation is postponed in cases of appendicitis until the inflammatory process has extensively involved the peritonæum, our results can not be expected to compare with those in which the operation is performed as soon as the condition is diagnosticated, and we can offer but little hope of recovery to our patient.

October 22, 1891.

THE
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A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, DECEMBER 5, 1891.

THE NURSES' TRAINING SCHOOLS OF NEW YORK.

In this issue we reprint an article that appeared in a recent number of a Cleveland newspaper, pointing out alleged serious defects in the management of some of the nurses' training schools of New York. The writer has nothing to say against the school attached to the New York Hospital, although he thinks it would be wise for the school to require that its pupils should be at least thirty years old at the time of their admission, instead of twenty-five. The author of the article is the Rev. George H. Peck, who mourns the loss of a daughter and attributes her death to overwork put upon her during her pupilage in a New York training school. We sympathize with Mr. Peck in the matter of his bereavement, but we can not admit that his loss or any facts set forth in his article can be held to justify the intemperate expressions he indulges in or the sinister motives he hints at as governing the management of our hospitals. Nevertheless, his statements—which, by the way, are in no wise strengthened by his quotation from that much overestimated person, Mr. Rudyard Kipling—are of a kind that call for investigation on the part of our hospital authorities.

Mr. Peck charges that the pupils of our training schools are accepted without being told of the arduous and dangerous character of the career upon which they are about to enter, that they are admitted at too early an age, that they are set to work at menial offices and otherwise affronted, that they are poorly lodged, that they are excessively overworked, and in particular that they are needlessly exposed to infection, especially to that of tubercular disease. Our various training schools undoubtedly differ in the treatment of their pupils, but we believe that in general the young women—and they ought to be reasonably young when they undertake to learn the business of nursing—are well taken care of and well paid (indeed, as we have before said, paid unnecessarily); however, it may be that there are exceptions of which we have no knowledge. On that supposition, we hope that everybody who is concerned in the management of a nurses' training school will make it his or her business to look into the matter of Mr. Peck's charges, and improve anything that may be found to be amiss in the conduct of the school, so far as the resources of the institution will admit of this being done. Of course, no hospital managers can guarantee their nurses against illness; all that the nurses can reasonably ask for in this respect is that the same care be taken to guard their health as is taken to protect the house staff, the superintendent, the pharmacist, and all others who have to pass the greater part of their time in a hospital, and this measure of care we believe they now enjoy.

ANCIENT AND MODERN PURIFICATION OF WATER.

From our state of self-felicitation upon the wonderful advances we have made in science there sometimes comes a rude awakening to the fact that, after all, we have only done what was practically accomplished centuries ago. The demonstration by the microscope of disease-producing germs in drinking-water, and the discovery that such germs can be removed by filtration or utterly destroyed by boiling, have been heralded abroad as among the glorious achievements of modern science. The absolute knowledge upon which modern sanitarians base their doctrines may not have been attained to by the ancients, but the theory that water might contain elements dangerous to health, and the methods of eliminating or destroying them, are certainly not new. Dr. Éloni-Bey, medical inspector general in the government colleges of Egypt, has given in the *Lyon médical* some quotations from a manuscript by Ebn-Radouan, an Arabian physician of the eleventh century, upon the preparation of water for alimentary purposes. They show that over eight hundred years ago the dangers of decomposing matters in water were well recognized and provided against in practically the same way as by our modern sanitarians.

Ebn-Radouan recommends taking the water of the Nile from places where the current is swiftest and contains the least decomposing matter, allowing the foreign material to subside, decanting the clear water, and further purifying it by means of heat, filtration, and the addition of certain aromatics.

Although it was not the custom of physicians in the time of Ebn-Radouan to give the reasons for their instructions, it is evident that he was in advance of his day in sanitary science, and that without the chemistry and instruments of precision known to modern science he arrived at practically the same conclusions as those held by sanitarians of the present time and issued the same wise instructions.

MINOR PARAGRAPHS.

GONORRHŒAL RASHES.

Two articles on this subject are epitomized in the *Deutsche Medizinal-Zeitung* for November 12th. One of them, by M. Léon Perrin, was published in the *Annales de dermatologie et de syphiligraphie*, and the other, by M. Voituriez, appeared in the *Journal des sciences médicales de Lille*. Of genuine gonorrhœal rashes—*i. e.*, rashes not due to the ingestion of some drug—M. Perrin has been able to find only twenty cases on record, and to them he adds two that have come under his own observation. Dr. A Blaschke, who summarizes M. Voituriez's article, says that he himself has never seen a case. According to Voituriez, the gonorrhœal exanthem resembles that of measles or that of scarlet fever and is followed by desquamation, whereas a copaiba rash is more like urticaria or a polymorphous eruption. The gonorrhœal rash may last for a week, and is usually generalized and often accompanied by fever and angina.

A NEW HOSPITAL IN MADAGASCAR.

The October issue of the *Friend*, an English Quaker journal, has a glowing account of a new hospital building opened at Antanarivo by Madagascar's queen. This hospital is sustained by the Society of Friends of Great Britain, under the medical superintendence of Dr. Samuel Fenn. Trained lady nurses from England add greatly to the popularity of the work, and young native women apply to them for training in numbers greater than can be accommodated. The old hospital building was situated in an insalubrious locality, and had a mortality regarded as too high to warrant its continuous use for in-patients. In 1890 its admissions numbered 488 and the deaths 41. On the surgical side. 102 major operations were performed; one only of these, which was an abdominal section, was fatal. Two country dispensaries attached to the hospital treat many hundreds of patients who can not go to the central institution, young native doctors and students giving their services in turn, under the guidance of Dr. Fenn.

THE REPORT OF THE SURGEON-GENERAL OF THE ARMY.

Surgeon-General Sutherland's report for the year ending June 30, 1891, is a brochure of 144 pages. It contains, besides the usual statistical tables, remarks and recommendations in regard to the various needs of the soldier, and in particular it shows great interest in his physique. The surgeon-general recommends the establishment of a systematic course of athletic exercises at each post. It seems that gymnasium exercise was compulsory at one post at times last winter, and Lieutenant Charles F. Mason reports that, although the course was not maintained long enough to show any very marked change in the men's physique, he is confident that during its continuance there was much less willingness than at other times to appear on sick report.

THE OPERATION FOR CLEFT PALATE IN TWO SITTINGS.

In a note read at one of the summer meetings of the *Société de médecine de Paris*, published in the *Union médicale* for November 21st, M. Polaillon recommends this procedure as being less fatiguing to both patient and operator. At the first sitting he traces the lateral incisions, frees the mucous membrane, scrapes the bone, and checks any hæmorrhage there may be by compression, sometimes with a hæmostatic forceps. On the next day or the day after he refreshes the flaps, which are now somewhat swollen and tend to approach the median line, and then inserts the sutures, with the great advantage that the hæmorrhage is trifling. He thinks this method insures success even in the most difficult cases.

THE EXTRACTION OF A HAIR-PIN FROM A WOMAN'S BLADDER.

In the *Gazzetta degli ospitali* for November 15th Dr. Caldani describes an ingenious procedure that he has resorted to for this purpose. He made a small hook of iron wire, and, passing it into the bladder through a cannula, seized the hair-pin with it, and then drew the hook slowly out through the cannula by means of a so-called mechanical corkscrew. The hair-pin was, of course, so changed from its original shape, being newly doubled by the traction, as to pass through without injury to the bladder. He remarks that the materials for improvising such an apparatus are to be found in almost any house.

A PHYSICIAN'S DEATH FROM INOCULATED DIPHTHERIA.

The *Medical Press and Circular* for November 18th reports the death of a young medical man by an attack of diphtheria contracted from the bite of a patient. Dr. Hensley, of Newton Abbot, attended a child suffering from the disease and was bitten while making a topical application to the patient's throat. The outcome of this inoculation was a virulent form of the disease, which carried him off in a short time after the death of his patient.

CANADIAN INSTITUTIONS GENEROUSLY REMEMBERED.

The Montreal General Hospital will presently receive a very handsome bequest, of the value of a hundred thousand dollars, by the will of the late George Chetwode Hamilton, of that city. It is stated by the *Montreal Medical Journal* that hardly a month passes without some benefaction being made to one or another of the charitable institutions or colleges of the large Canadian cities.

A NOVEL OFFENSE AGAINST A PHYSICIAN.

A recent number of *Vratch* quotes a statement to the effect that a St. Petersburg physician was about to prosecute a man who had caused one of the physician's prescriptions for his deceased wife to be posted over her grave, in order to call public attention to his belief that the medicine had been the cause of her death.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 1, 1891:

DISEASES.	Week ending Nov. 24.		Week ending Dec. 1.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	39	7	32	6
Scarlet fever	134	18	160	34
Cerebro-spinal meningitis	0	0	1	1
Measles	70	3	65	5
Diphtheria	113	33	132	56
Small-pox	0	0	0	0
Erysipelas	1	0	2	0
Varicella	7	0	9	0
Pertussis	1	3	1	0
Mumps	1	0	0	0

The Midwifery Dispensary.—It is announced that the position of assistant in this institution is open to practitioners and recent graduates of any recognized medical college. Each assistant will examine a number of pregnant women at the dispensary and personally conduct the confinements and after-treatment of the mother and child at the homes of the patients in the vicinity. The fee for the course of two weeks is ten dollars. At the present time over one hundred women a month are delivered. Special instruction in operative obstetrics upon the manikin will be given to those who desire it.

The New York Surgical Society.—At the next meeting, to be held at the Academy of Medicine, on Wednesday evening, the 9th inst., Dr. Pilcher is to read a paper entitled Notes on Tuberculosis of the Urinary Bladder, and the Value of Suprapubic Cystotomy in its Treatment.

The American Chemical Society.—In accordance with a resolution of the society, approved by the Board of Directors and Advisory Council, and in response to an invitation from the members residing in New York and vicinity, it has been decided to hold a general meeting of the society in New York on December 29 and 30, 1891. A committee of arrangements has been appointed, and further announcements of the meeting will be made at an early date. A cordial invitation to this meeting is extended to chemists, chemical manufacturers, and all persons interested in the progress of chemistry.

Bequests to Hospitals.—Under the will of the late Mr. Jonathan Goodwin, the following hospitals receive each $5,000: The New York Cancer Hospital, the City Hospital, Hartford, Conn., and St. Luke's Hospital, Chicago.

The Death of Dr. Frank W. Fleischhauer, of Brooklyn, occurred on November 22d. He was a promising young practitioner, a graduate of about two years' standing from the Long Island College Hospital.

The Death of Dr. Herbert G. Lyttle, of Long Island City.—Dr. Lyttle died on December 1st, in his fortieth year. He was a graduate of the Medical Department of the University of the City of New York, of the class of 1878. He was an assistant professor at the Post-graduate School from 1884 to 1888.

Change of Address.—Dr. Simon Baruch, to No. 67 West Seventieth Street.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending November 28, 1891:*

Woolverton, Theoron, Medical Inspector. Placed on the retired list. November 13, 1891.

Bryant, P. H., Assistant Surgeon. Detached from Coast Survey Steamer Gedney and to wait orders.

Jones, W. H., Surgeon. Ordered to examination preliminary to promotion.

Guest, Semmes Middleton, commissioned an Assistant Surgeon in the navy, November 19th.

Martin, William, Surgeon. Ordered to the U. S. Steamer Thetis.

Wilson, George B., Assistant Surgeon. Detached from the U. S. Steamer Thetis, ordered home, and granted two months' leave.

Society Meetings for the Coming Week:

Monday, *December 7th:* New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Corning (N. Y.) Academy of Medicine; Utica Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *December 8th:* New York Medical Union (private); Medical Societies of the Counties of Chemung (quarterly—Elmira), Oswego (semi-annual—Oswego), Rensselaer, and Ulster (quarterly), N. Y.; Kings County Medical Association; Newark, N. J., and Trenton (private), N. J., Medical Associations; Morris, N. J., County Medical Society (semi-annual); Baltimore Gynæcological and Obstetrical Society.

Wednesday, *December 9th:* New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Societies of the Counties of Albany, Cayuga (semi-annual), Cortland (semi-annual), and Montgomery (quarterly), N. Y.; Pittsfield, Mass., Medical Association (private); Philadelphia County Medical Society.

Thursday, *December 10th:* New York Laryngological Society (annual); New York Academy of Medicine (Section in Pædiatrics); New York Academy of Medicine (Section in Genito-urinary Surgery); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

Friday, *December 11th:* Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

Saturday, *December 12th:* Obstetrical Society of Boston (private).

Answers to Correspondents:

No 367.—We should advise another trial of immobilization for four or five weeks, using interosseous pads imbedded in a plaster splint (of the old-fashioned sort, with Canton flannel), applying wide palmar and dorsal splints over the plaster before it sets, and putting a roller bandage around the splints. The question of a nutrient artery need not be considered. If the case comes to operation, we know of nothing better than cutting down on the fractures, removing any tissue that may be found caught between the fragments, and wiring or nailing the latter together, using scrupulous antiseptic measures and immobilizing as above described. Of course, the patient's general nutrition must be attended to carefully.

Obituaries.

NATHANIEL C. HUSTED, M. D., LL. D.

THE death of Dr. Nathaniel C. Husted, of Tarrytown, took place on Thursday, the 19th ult. He was born in Greenwich, Conn., in October, 1825. He was educated at the academy of North Greenwich, and left there when about twenty years of age to pursue the study of his profession in the medical department of the University of the City of New York, from which he was graduated in 1850. He soon after began medical practice in New York. He became surgeon to St. Luke's Dispensary, and for a time was a surgeon in the Department of Police. During the late civil war he was under appointment by the Governor of this State, in 1863 and 1864, to visit Fortress Monroe and the field hospitals of the Army of the Potomac in which the troops of his State were on duty. He was one of the senior members of the American Medical Association and the New York Academy of Medicine, and a founder of the New York State Medical Association. He was an honorary member of the Connecticut Medical Society and of the Medical Society of Westchester County. He was surgeon to the Westchester County institutions for about ten years, and at about that time he moved to Tarrytown. He had been a trustee of Syracuse University since 1883, and had interested himself especially in the progress of its medical department. His principal contribution to surgical literature was his paper on Resection of the Elbow Joint, presented before the State society in 1862. He was a man of sterling worth, strong in his convictions and faithful to every trust.

Letters to the Editor.

COCAINE AND HAY FEVER.

BURLINGTON, VT., *November 19, 1891.*

To the Editor of the New York Medical Journal:

SIR: The cogent and concise paper by Dr. J. W. Stickler, entitled Beware of the Free Use of Cocaine in Hay Fever, which may be found in the Journal of October 31, 1891, is worthy of the attention and acceptance of every general practitioner. Nine reasons are given why cocaine should not be used freely in that affection. The observation of many cases has already convinced me that they are sufficient.

I desire to add a note to the fifth reason, "The excessive use of cocaine often causes troublesome congestion of the nasal mucous membrane." I have observed, in one case at least, that the free use of cocaine has caused more than a troublesome congestion. In that instance the whole interior of the nose was lined with a thick croupous exudation, very tenacious and closely adherent to the mucous membrane, and from a sixteenth to an eighth of an inch thick. I was able to remove strips of it with a forceps. There was no doubt that this local manifestation was due to the cocaine, which had been used freely for several days, had caused marked prostration of the patient's strength, and had failed to control the sneezing and asthma.

I removed as much of the exudation from the sæptum and inferior turbinated body as I could, and then cauterized the nasal distribution of the fifth nerve thoroughly with the galvano-cautery. The use of cocaine was interdicted, of course. Two days later I did another operation with the cautery. The improvement in both the local and the general symptoms was very striking.

My hay-fever patients are always cautioned to avoid cocaine, because, as a rule, it aggravates their symptoms. At first cocaine produces a pleasing effect, but the duration of it is short and the sequence is an aggravation of the patient's condition, which additional doses of cocaine can not relieve. To my knowledge there are only two good methods of treatment for hay fever: 1. Removal to regions where the disease does not exist. 2. Treatment of the nose, and especially cauterization of the sensitive areas, which are to be found in greatest abundance over the triangular cartilage of the sæptum and over the anterior third of the inferior turbinated body. I am aware that some observers have not been able to locate such sensitive areas in their patients. Such areas do exist, nevertheless, and I have no doubt that had my cases fallen into those observers' hands their experience would have been different.

Cauterization of the nose will not cure every case of hay fever by any means, nor will any variety of local treatment. But I am certain that many cases may be relieved, and some cured, by treatment of the nose. Some of my results have been very satisfactory.

J. H. WOODWARD, M. D.

THE ACTION OF THE VOCAL ORGANS IN SINGING.

HARTFORD, CONN., *November 28, 1891.*

To the Editor of the New York Medical Journal:

SIR: Experiments or investigations on the position of the glottis in singing would of course be valuable to medical as well as to vocal science if the representations were made from a perfect standard.

This can not be alleged for the examples presented by Dr. T. R. French in the *New York Medical Journal* for January 31, 1891. "Breaks" and "registers" belong only to a perverted vocal action. The better class of vocal teachers—though knowing but little of the true laws of vocal action—are, through their ear, now guarding against this old terror.

The action of the vocal organs is in accordance with certain laws, and produces certain uniform effects. These effects must eventually by practice be recognized as *sensations*. Inasmuch as every single part of the vocal organs—as well as their adjuncts having a direct or indirect influence on the vocal activity—has a meaning or intended use, and every one of these uses *can* be understood and controlled as we may choose, the necessity for leading teachers to ascertain these in their scientific and practical results vocally is manifest.

In this brief communication it would be of but little use to enter into points for scientific debate, but, when my great vocal work, through its perfect vocal effects and sanitary importance, becomes indorsed as a new "school" for vocal instruction, I think Dr. French, for instance, who is sincerely interested in scientific progress, will find points of vital importance.

I think the new use of physiology makes it possible to sustain the vocal ligaments in their full length, giving from the very insertions as well as toward these the brilliant intoning process. This form of intonation is, by the way, not identical with the "stroke of the glottis," which has become a mere substitute for the true musical intonation, but in reality is nothing but a swift approximation of the "cords" by either inspiring or expelling air through the trachea.

Also it might be proved that there never could be a "stop closure" if the lateral and posterior cricoid muscles were fully understood. These, however, can not become uniformly sustained unless all the natural air-passages remain free.

The trachea, bronchi, and lungs are not understood in their relation to the voice; consequently the recurrent activity of tone, or inspiration, has thus far been appreciated by only one singer, Rubini.

It rests with the glottis and trachea whether we sustain the lungs and air-passages in easy, uniform, and *continuous* activity.

THORA K. BJORN.

Proceedings of Societies.

MEDICAL SOCIETY OF VIRGINIA.

Twenty-second Annual Meeting, held in Lynchburg, on Tuesday, Wednesday, and Thursday, October 6, 7, and 8, 1891.

The President, Dr. WILLIAM W. PARKER, of Richmond, in the Chair.

Address to the Public and the Profession.—Dr. C. M. BLACKFORD, Jr., of Lynchburg, Va., spoke on Medicine as it was, as it is, and as it ought to be.

Dr. RAWLEY W. MARTIN, of Chatham, Va., was selected by the board to explain the Missions and Methods of the Medical Examining Board of Virginia. This address was replete with interest in showing the many positive benefits resulting from this board to the people, to the profession of the State, and to the cause of medical education throughout the country.

The Hunter McGuire Prize.—None of the essays submitted for Dr. Hunter McGuire's prize of $100—subject, Pyelonephritis—was deemed entitled to it by the committee. The subject for the prize next year was announced as Tetanus. Competition was limited to members in good standing in either of the State medical societies of West Virginia, Virginia, or North Carolina.

St. Luke and Jenner as Model Men and Great Physicians was practically the title of the address by the PRESIDENT. Its unique, instructive, and suggestive characteristics were such as gave to it great interest.

Acute and Chronic Dysentery was the subject for general discussion. The leader, Dr. P. B. GREEN, of Wytheville, read a paper reviewing recent literature and incorporating a large amount of personal observation on the subject. While admitting such forms as "bilious," "catarrhal," etc., he thought that for the most part dysentery should be treated as a septic disease by antiseptics, such as iodoform, salicylic acid, creasote, naphthalin, etc. Sodium salicylate was perhaps the one to be generally preferred. Another good formula was—

℞	Carbon bisulphide	ʒ vj;
	Water	℥ xvj;
	Spirit of peppermint	gtt. xxx.

M. Shake well and let settle.

Sig.: Eight to ten tablespoonfuls in milk or water several times each day.

If no improvement in a week, then he used an injection, such as—

℞	Laudanum	ʒ iij to iv;
	Oil of turpentine	ʒ iijss.;
	Powdered gum arabic	āā ℥ ss.;
	White sugar	
	Camphor water	℥ iij.

M. Sig.: Teaspoonful every four or six hours.

If hæmorrhage took place, he used ergotol hypodermically. Treatment by rectal injections of antiseptics had invariably proved successful in adults, and in most cases in children except infants. He preferred warm solutions of mercuric bichloride (from 1 to 10,000 to 1 to 3,000) every six to twelve hours. Listerine, salol, fluid extract of hydrastis, and the salicylates were other good antiseptics.

Dr. WILLIAM J. CRITTENDEN, of Unionville, Va., spoke of the geographical distribution of dysentery—being on the Pacific coast as 1 to 1,000 cases of disease, while in the Mississippi River district it was as 21 to 1,000. He spoke of the numerous complications of the disease, and then of the treatment, showing that the "ounce of prevention was worth many pounds of cure."

Dr. BEDFORD BROWN, of Alexandria, discussed dysentery, viewed as a septic disease, and treated principally by antiseptics. The septic forms were those that were formerly called by such names as malignant, typhoidal, famine, jail, camp dysentery, etc. Continuous cleanliness of drinking-water, food, air, etc., was the preventive. When developed, septic dysentery killed from 25 to 75 per cent. of patients attacked. Begin treatment with calomel as a cathartic, and follow this by a cleansing dose of Epsom salts. Then begin with antiseptic injections—about two drachms of carbolic acid to two or more pints of water. By the mouth, give a tablespoonful every three hours of—

℞	Aromatic sulphuric acid	ʒ ij;
	Sulphate of magnesium	℥ ss.;
	Deodorized tincture of opium	ʒ ij;
	Syrup of orange-peel	℥ j;
	Peppermint water	℥ iij;
	Water	℥ ij. M.

Occasional full doses of Epsom salts were often needed to relieve congestions, correct secretions, etc. In severer cases, use more decided antiseptics, such as naphthalin, salol, and phenacetin, five grains of each every three hours, and irrigate the bowels twice daily with creolin. If adynamia occurred, marked by intensely fœtid discharges of blood mixed with mucus, pus, sloughs, etc., use injections of an ounce or two of hydrogen peroxide in a pint of water. Ichthyol dissolved in mucilage was also good. In threatened collapse, besides caffeine hypodermically, give one one-hundredth grain each of atropine, strychnine, and nitroglycerin. In malignant hæmorrhagic forms, give half an ounce of turpentine in a pint of emulsion, and repeat the following every two or three hours:

℞	Opium	gr. ss.;
	Tannin	gr. ij;
	Strychnine sulphate	gr. $\frac{1}{50}$;
	Iodoform	gr. j;
	Creasote	gtt. j. M.

In chronic dysentery, the septic fæcal matter, by constantly passing over the raw or wounded surfaces, kept up the septic condition. Tepid-water irrigations, followed by half-gallon injections twice a day of solutions of hydrogen peroxide, creolin, or ichthyol, would do good. It was best to administer these irrigations through a soft-rubber tube, about fifteen inches long, passed well up into the colon.

Dr. J. EDGAR CHANCELLOR, of the University of Virginia, spoke of the special value of Rockbridge Alum Springs water in many cases of chronic dysentery.

Dr. R. I. HICKS, of Warrenton, had not succeeded in curing dysentery with antiseptic irrigations. By this method he had one death in fifteen cases, whereas with the opium treatment, associated with a suitable laxative, in thirty-three cases he had thirty-three cures.

Dr. D. A. LANGHORNE, of Lynchburg, agreed with Dr. Hicks about irrigations. The calomel purgative treatment was too risky, while the "locking up" opium treatment was dangerous. In those cases having pale, flabby tongue, etc., Rockbridge Alum Springs water was especially valuable.

During the afternoon invited guest Dr. A. M. Phelps, of New York, held a clinic, operating successfully on two cases of club-foot, and demonstrating the various steps taken while operating. His operation on the case of congenital talipes equino-varus in a boy about thirteen or fourteen years of age was specially applauded, for the character of the talipes made it a very difficult operation.

Election of Officers.—The following elections took place for the ensuing term of one year: President, Dr. H. Gray Latham, of Lynchburg; vice-presidents, Dr. J. R. Gildersleeve, of Tazewell Court-House; Dr. Hugh Stockdell, of Petersburg; and Dr. J. B. Moore, of Ayletts; recording secretary, Dr. Landon B. Edwards, of Richmond; corresponding secretary, Dr. J. F. Winn, of Richmond; treasurer, Dr. Richard T. Styll, of Hollins; to fill unexpired terms on the Medical Examining Board of Virginia, Dr. Kent Black, of Blacksburg, and Dr. William S. Christian, of Urbanna; subject for general discussion, 1892, Vertigo; leader, Dr. E. T. Brady, of Marion; to deliver the address to the public and profession, 1892, Dr. Jacob Michaux, of Richmond; place for session, 1892, Luray, during the second week in September; chairman of the committee on applicants for fellowship, Dr. William D. Turner, of Fergusson's Wharf, Isle of Wight County; chairman of the executive committee, Dr. Hunter McGuire, of Richmond.

The Report on Advances in Chemistry, Pharmacy, Materia Medica, and Therapeutics was read by Dr. Benjamin Harrison, of Richmond.

The Place of the Turkish Bath in Disease was the topic of the paper by invited guest Dr. Charles A. Shepard, of Brooklyn, N. Y. He referred to the antiquity of the bath and its physiological action, and then spoke of the modern theory of disease. He said that the excretions of all living things, plants as well as animals, contained substances that were poisonous to the organisms that excreted them. Even the urine that was excreted during the hours of activity was more poisonous than that excreted during the hours of rest. Both physical and mental labor were accompanied by the formation of these deleterious substances, and if the hours of labor were prolonged and those of rest shortened there would be an accumulation of effete matter in the system, and might result in fatigue fever, which was by no means uncommon to the overworked physician. Here the blood was subjected to a process of decomposition brought about by the infiltration into it from the tissues of poisonous substances. These substances, when injected into the circulation of healthy animals, induced malaise and all the signs of excessive exhaustion.

With the purest of food, water, and air, man's excretions contained poisons that were formed within the body. They originated in the metabolic changes by which the complex organic molecule was split up into smaller compounds until the end products, urea, ammonia, water, and carbon dioxide, were reached. Some of the intermediate compounds were also highly poisonous. The lassitude, depression, sense of weight in the limbs, and dullness in the head, occurring in the well-bred inactive man after meals, was attributed to poisoning with peptones, and the condition we called "biliousness" was due to the formation of poisonous alkaloids.

Many of the nervous symptoms which accompanied some forms of nervous dyspepsia were due to the formation and absorption of poisonous substances. Such instances showed that while the specific germ was a cause of disease, the chemical factor was much more important, and he closed with a strong appeal for the more general use of the Turkish bath in medicine.

The Report on Advances in Obstetrics and Diseases of Women and Children was read by Dr. Herbert M. Nash, of Norfolk.

Retro-displacements of the Uterus.—Dr. H. P. C. Wilson, of Baltimore, Md., read a paper on this subject. The most common form was retroflexion, which sooner or later led to serious symptoms in other organs, which lasted even after the retro-displacement was corrected. The uterine probe was valuable to determine the direction of the uterine canal, the amount of fixation, etc. A recently retro-displaced and movable uterus was usually easily replaced and held in position by a comfortable pessary. The vagina should then be washed out daily with hot water, and the bowels regularly opened. Constipation was so common in woman, and so often the cause of her troubles, that the speaker had almost formulated the opinion that the chief aim of woman should be to serve God and keep her bowels open. Let a comfortable pessary remain, but promptly remove one that did not fit. As the patient improved, one should keep on replacing the one in position with a smaller one. One should not raise a displaced uterus with a probe, but with a Hodge's pessary. When sensitiveness of the parts prevented complete restoration of the retro-displaced uterus, it should be replaced only partially and so held until the lessened irritability permitted more replacement, etc. Cervical or vaginal abrasions should be touched with a weak solution of Monsell's solution in glycerin (1 to 12), and a fresh aseptic pad of lamb's wool used till the pessary could be replaced.

Dr. Joseph Tabor Johnson, of Washington, D. C., said that the greatest caution should be exercised in using a pessary if inflammation existed. If a posterior mural fibroid caused the displacement, of course surgical aid must be invoked. He believed that to use the probe, even to determine the course of the uterine canal, was harmful in many cases. The womb was intended to be a movable organ; hence to "fix it" with a pessary would often result injuriously.

Dr. L. Lankford, of Norfolk, first swabbed out the vagina with a 1 to 4,000 solution of mercuric bichloride, and then applied a tampon (about every fifth day) of selected lamb's wool, wet with the solution. While passing the tampon into the uterine cavity, he steadied the cervix, if required, with a tenaculum. He removed this tampon and applied a powder of iodoform ($\frac{1}{3}$) and bismuth subnitrate ($\frac{2}{3}$); or else he sometimes used boroglyceride. A pessary made of marine lint (which was aseptic) was then introduced.

Dr. I. S. Stone, of Washington, D. C., commended Dr. Wilson's paper for its cautious recommendations about the use of the probe and pessary. It was obvious that no pessary could relieve the ovarian and the perimetric inflammatory adhesions which were frequent causes of chronic retro-displacements. Patients sometimes expressed themselves as feeling better after any treatment, and thus pessaries were sometimes praised. But when a pessary did not cure in a short time, it should be removed and another plan of treatment adopted. He had recently removed a pessary that had been put in years ago in Japan; but he had found three fibromata in the uterine wall which were probably due to the pessary.

Dr. R. M. Slaughter, of Theological Seminary, reported a case of long wearing of a pessary.

The Ætiology and Pathology of the Diseases of the Puerperium.—Invited guest Dr. Thomas A. Ashby, of Baltimore, read a paper based on personal observations. Such diseases were largely inflammatory and septic, due to traumatisms. In every case of puerperal metritis, peritonitis, or septicæmia which he had examined there had been invariably laceration of the cervix uteri; and the same was true of his observations on tubal disease. Micro-organisms which entered the vagina differed very markedly in their morphological characteristics, as well as in their clinical histories, symptoms, and lesions. We now recognized two distinct characteristics—the germ of putrefaction and the germ of suppuration—in the one case producing a distinct sapræmia; in the other a true septicæmia or pyæmia. The *Bacterium termo* was the agent which generated the ptomaines or leucomaines which gained admission to the blood; it produced putrefaction. On the other hand, micrococci, chain-bacteria, and streptococci of wound infection were supposed to be identical, flourished in the blood, and multiplied with such rapidity as to produce the most profound toxæmia. Thus it would be seen that intrapelvic diseases were generally preventable, and the prophylaxis was mostly within the reach of the obstetrician and general practitioner. Asepsis was the preventive.

(*To be concluded.*)

NEW YORK SURGICAL SOCIETY.

Meeting of May 13, 1891.

The President, Dr. Charles K. Briddon, in the Chair.

Intracranial Hæmorrhage.—Dr. L. A. Stimson showed a patient about forty years of age of whom he gave the following history: The man was a sailor, and had some weeks before been sent to the New York Hospital after being struck on the head with a club during a quarrel with a dock watchman. On the left side of his head a marked irregularity could be felt at the junction of the squamous portion of the temporal bone with the parietal. Pending the question of homicide, nothing was attempted in the way of operation for a few days. There developed paresis of the right leg and almost complete paralysis of the right arm. The man could say Yes and No and could swear volubly when irritated, but beyond this he could not articulate at all. The diagnosis was that of moderate intracranial hæmorrhage. Five or six days after the injury the speaker operated upon him. He found a fracture of the temporal bone above the ear without depression. A fissure ran backward across the parietal border. No blood was found between the bone and the dura, but the dura was dark and did not pulsate. It was opened and the clot was found in the arachnoid space. As the clot extended backward, the opening was enlarged in that direction and an ounce and a half of soft clot was teased out by gentle pressure. The flap was then turned back into place and sutured and the patient put to bed. Contrary to expectation, the patient had shown no symptoms of immediate improvement after the operation. Gradually, however, the paralytic symptoms had disappeared and speech had returned. At the present time careful examination, such as by asking the patient to name familiar objects or to state his age, and so on, would demonstrate the fact that there still existed very considerable uncertainty in speech.

Dr. F. Lange stated that he had trephined for similar symptoms in a child about eight years of age. Owing, as now appeared, to an injury at the end of his second year, the patient had become partly hemiparetic and aphasic, and had shown symptoms of idiocy, or, at least, of deficient intelligence. The child was a confirmed swearer and in general depravity was the *enfant terrible* of the neighborhood. The speech was reduced to little more than some ugly expressions. Further examination had not revealed anything of interest. The hearing, sight, and general sensibility were good. But for some time before, and of late quite often, epileptic seizures had occurred, sometimes preceded by twitching in the right arm. The speaker trephined him, thinking that there might exist some injury to the motor centers. The method adopted was that of osteoplastic exsection of the skull, by which the greater part of the motor and speech centers on the left side were laid bare. No remarkable thickening was found or any injury to the bone. There was a certain opacity of the pia and there was a large amount of subarachnoidal fluid. The boy bore the operation well and seemed to improve in some ways after it; especially, he had seemed more manageable and intelligent. The wound apparently did well. There was a profuse discharge of subarachnoidal fluid for almost two weeks, which possibly relieved the pressure within the cavity and allowed of the somewhat more perfect function of the brain. In about four weeks after the operation, however, convulsions suddenly set in and the patient went from bad to worse and finally died. It was quite likely that the boy had been an epileptic from birth and that the injury referred to had no bearing on the case.

Dr. J. A. Wyeth described an operation he had recently performed upon a patient, thirty-three years of age, who had been subject to epileptoid seizures confined to the left hand. The left arm center was exposed by means of the trap-door incision, when it was found that this center was being pressed upon by thickened dura, and that at this part of the brain the pia was firmly attached and had puckered into the convolutions. One of the distressing features of this patient's case was that he would pass some four or more hours a day at his religious devotions.

The President said he was not inclined to attach much importance to the presence or absence of pulsation in the dura in diagnosticating pathological changes in the brain. Not long before, a girl, about seven years of age, had been brought to the Presbyterian Hospital suffering from the results of an injury received two months before. She had epileptic attacks, the convulsions occurring at varying intervals; she was also suffering from somnolence, which gradually deepened into coma, and it was said that there was a slight paretic condition of the left arm and leg. Careful examination on the medical side of the house had resulted in a diagnosis of tumor in the motor area. The speaker's opinion was contrary to that, and was that an abscess followed an effusion of blood. On exposure of the suspected area, the dura, dark maroon or purplish in color, bulged into the wound. The dura did not pulsate. An incision released about two ounces of clear fluid from the ventricles. The autopsy, which was made with great precision, revealed nothing abnormal within the cranial cavity. Further examination showed that the patient's kidneys were mere apologies for those organs, and forced the deduction that the symptoms had been all due to uræmia.

Gastrostomy for Cancer of the Œsophagus.—Dr. Willy Meyer presented a patient, seventy years of age, suffering from cancer of the œsophagus, upon whom it had been necessary to perform gastrostomy for feeding purposes. The speaker had made the incision after the manner of von Harker, of Vienna, through the left rectus muscle, dividing its belly in the middle parallel to the linea alba. The stomach was sewed to the abdominal wall as usual, and opened with the knife by a very small incision forty-eight hours later. The opening was just large enough to admit a small-sized drainage-tube. This had been done five weeks ago and there has been no leakage, the hole in the left rectus muscle acting as an artificial sphincter. The speaker believed that this method presented great advantages over the old Fenger's operation, in which the incision was made parallel to the border of the left ribs. In this case the patient had gained fifteen pounds in weight up to date.

Dr. Stimson explained the mechanical devices which he had used and seen employed in preventing leakage in this class of fistulæ.

Actinomycosis.—Dr. F. Lange, in the course of a brief dissertation on this subject, said he believed the disease was not by any means so uncommon in this country as was supposed.

He had seen ten cases. One of these, in which the disease was localized in the region of the mid-dorsal vertebræ, had occurred in an old man, but, though the characteristic granules were present and the case was a clear one, there had been no microscopical examination and the patient had passed from observation. The speaker then touched in detail upon the nine remaining cases, which had been diagnosticated beyond doubt microscopically. One of these he had seen in consultation with Dr. A. Mayer, who would probably report further upon it. It was possibly the most monstrous example he had ever met with. The patient, a lady, had been sick for a number of years. At first she had an abscess in the region of the navel, where a fistula still existed. Subsequently an abscess was opened in the vagina. When seen by the speaker, last winter, the patient presented a number of large suppurating, crater-like openings in the left gluteal region, with such exuberant and elevated granulations that at first glance the case appeared one of enormous sarcoma which had perforated in several places. Over the left iliac fossa, the left gluteal region, and the lumbar region a hard infiltration could be felt, and undoubtedly the disease had taken its origin from the alimentary canal. The patient was so much reduced that he did not dare to hope for her convalescence. Still, under the treatment inaugurated by Dr. Mayer, she had done admirably, and from a most miserable condition had been restored to one of comparative health. There was at present only one fistula in the gluteal region, and the infiltrations had almost disappeared. The speaker exhibited microscopic specimens prepared from his various cases. The single roundish elements presented different appearances. For the most part they had the usual shape and size and showed the club-like form of the peripheral rays. In others the zone of rays was extremely delicate. The elements in the case above recorded were peculiar. The actinomycotic bodies were rather large macroscopically and of the usual sulphur-like color, but under the microscope they looked very much like branched pine twigs. Instead of the fine sphere, which as a rule contained the fine network of filaments and granules, there could be seen branched streaks around which the fine needles were arranged rather symmetrically.

Two of his cases had ended fatally. These were both in male subjects. One of these he had formerly presented to the society. The diagnosis in this case was made by aspiration and microscopical examination, to the exclusion of abscess of the liver, to which the general symptoms pointed. The patient was operated upon, when it was found that the disease extended far back between the diaphragm and the convexity of the liver, and that its point of origin could not be reached. The patient died several weeks afterward from pyæmic fever. The other fatal case was that of a boy of seventeen who had never come in close contact with cattle. He was very poorly developed and had several fistulæ in the lower dorsal region and about the adjoining ribs. He suffered from some shortness of breath, and the lower portion of his lungs, especially of the left one, presented dullness and diminished breathing sound. He had a hard, dry cough, but did not expectorate. There was no fluid in the pleural cavity. In this case repeated operations were done and the greater portion of one rib was at last exsected. This the speaker showed and called attention to the peculiar honeycombing made by the process. In this case perforation of the diaphragm had occurred with abscess over the spleen. After lingering many months the boy had finally died from exhaustion. As a point bearing upon the possible ætiology in this disease, the speaker mentioned that in his first fatal case the patient's occupation had been that of a maltster and that in a case observed at Kiel there had been found in an actinomycotic abscess of the tongue in a field-worker the needle of a barley head which the man had kept in his mouth. It was pervaded by the fungus and had evidently carried the infection. The speaker had been struck with the profuse bleeding which took place from the granulations in this disease. In a large majority of the cases under consideration the morbid process had been in more or less direct connection with the oral cavity. Two had been in butchers, but in the others no clear points as to ætiology could be made out. It seemed that cases offered a fair prognosis so long as the diseased tissues could be thoroughly removed or be reached by suitable therapeutical agents. Still, once in a while a case would be found very obstinate. An instance of this had occurred in a young butcher in whom the disease had affected the lower jaw and subsequently the submaxillary and submental regions. Repeated radical operations were done and the disease had seemed several times well under control, but recurrences would then take place. At last the case had ended in recovery. Crystalline boric and salicylic acids had been rubbed into the tissues after the operation, but the speaker could not say whether this would be likely to secure immunity from recurrence if a small focus of infected material was left behind. The injection of Lugol's solution into the fistulæ and the surrounding tissues had done good in several cases. Dr. Mayer, in his two cases, had used with the most marked success nitrate of silver and nitrate of zinc.

The speaker hoped that by thus mentioning his experience he would call attention on the part of surgeons to this interesting disease, the diagnosis of which was of great clinical importance. Many would be able to recall cases that could not be registered under any usual clinical type, and a fair percentage of these might well have been cases of actinomycosis. In cases where spontaneous recovery took place this seemed to be favored by the process of infiltration and subsequent shrinkage, by which a wall was provided against the encroachments of the proliferating fungus. To assist Nature in these efforts would probably be the course to follow where the knife could not be used with certainty and safety.

Meeting of May 27, 1891.

The President, Dr. Charles K. Briddon, in the Chair.

Ossifying Hæmatoma.—Dr. W. W. Van Arsdale presented a male patient, twenty-three years of age, whose personal and family history was perfect in point of general good health, the only fact noted being a tendency on the part of the patient and his relatives to bleed persistently from slight causes—such as the extraction of a tooth. Six weeks before, the man, while engaged in some friendly sparring, had allowed his antagonist to attempt to disable him by hitting him severe blows over the arm, in the region of the biceps muscle. The immediate result was the appearance of a swelling of the part, which, however, was not painful. This went on until there was a large tumor over and adjacent to the biceps. Massage was employed, and the size of the tumor was thereby much reduced. In the upper part of the swelling, however, a hardness had manifested itself, which was apparently in the tendon, and which the speaker considered a bony growth, resulting from myositis ossificans or periosteal hæmorrhage.

The President thought that the time had been too short for the deposit of bone to have taken place.

Supramalleolar Osteotomy for Traumatic Deformity.—Dr. Meyer presented a man, twenty-seven years of age, who had sustained very severe injuries from falling sixty-eight feet down the hold of a ship nine months before. The patient had dislocated his right foot, fractured the astragalus, and also sustained a Pott's fracture on the other side. He had been eight months in a hospital, and splints had been kept on for three months. When these were removed he was utterly unable to walk, and had then entered the German Hospital. He had at that time a very marked talipes equinovarus on the right side and a talipes equinovalgus on the opposite side. The speaker had performed tenotomy on both sides, extirpation of the astragalus on the right, and supramalleolar osteotomy on the left side. The result had been very satisfactory. The patient was now, five months after the operation, well able to get about and was already at work.

Foreign Bodies in the Bronchi.—This was the title of a paper by Dr. J. D. Rushmore. (See page 85.)

Dr. R. F. Weir called to mind a case of the late Dr. Buck's, in which the patient, after resection of the larynx, had inhaled the distal portion of a tracheotomy tube. It was found by auscultation to be located in the left bronchus. Buck did a low tracheotomy, and was able to feel the bifurcation of the trachea with his finger and to seize and extract the tube with a suitably bent forceps. In a case of the speaker's, while he was operating upon the lower jaw for necrosis, it had been necessary to remove a tooth. The patient struggled at the moment, and the tooth slipped from the forceps. It was thought that it had been coughed up among the dressings. Forty-eight hours afterward, however, difficulty of breathing, with increased cough, etc., had come on, and an obstruction was located in the left bronchus. An operation similar to Buck's was proposed, but the man refused to have anything done, and died. The autopsy showed the tooth lodged at the first division of the left bronchus, from which it could probably have been extracted. Another case was also cited by the speaker in which a patient was brought to him by a dentist, who, in attempting to extract a tooth, had broken it off. The patient some ten days after this accident had begun to have difficulty of breathing, cough, rise of temperature, and changes in the pulmonary sounds. The speaker made an opening low down in the trachea, and was able to feel the division of the trachea into the bronchi with his finger. By means of a bent copper-wire loop passed into the bronchus, after failure with forceps and other instruments, the piece of broken tooth was dislodged and then extracted with an angular forceps. The speaker had recently rehearsed on the cadaver the operation, revived by Quénu, of resecting the upper left ribs posteriorly to effect an entrance to the mediastinum, and found not only that the œsophagus was readily exposed for the removal of an impacted foreign body, but that the left bronchus near its origin could be reached without invading the pleural cavity.

Dr. Charles McBurney thought that, bearing in mind the angle taken by the left bronchus, an entrance might be made from the right side low down in the neck, and the trachea opened at the side, and that this would allow an instrument to pass directly into the left bronchus.

Intussusception in an Adult.—Dr. Robert Abbe showed a specimen from a case with the following history: A lady, thirty-four years of age, in perfect health, while packing her trunks, had suddenly felt pain in her abdomen below the navel and slight faintness and nausea. She was attended by a homœopathic physician at first. At the end of a week she was seen by the speaker and operated upon. The symptoms throughout the case had been very scant. There was no tenesmus, there were no mucous or bloody stools, and there was but little fæcal discharge from the lower rectum. Nausea and vomiting were only occasionally present, and the temperature was normal. On the day before the operation the vomiting became fæculent; still, the abdomen showed no marked tumor, but a dullness extending across the pubes. Upon operation in the median line, there was found, eight feet from the ileocæcal valve, a sausage-shaped mass which lay over the promontory of the sacrum, and one end of this was already gangrenous. The mass proved to be the intussusceptum. At its mesenteric attachments there were six points which, on handling, exuded a little pus. The case was interesting from the fact that there had been no symptoms pointing to the real condition of things.

Foreign Body in the Trachea.—The President showed a specimen, which he said was probably twenty-five years old, taken from a child upon whom he had performed the autopsy, and which had died suddenly from getting a foreign body into its air-passages. The impediment, which could still be seen *in situ*, was a piece of boiled liver.

Osseous Growth in the Pelvis.—Dr. Lange exhibited a specimen of a growth that he had recently removed from the pelvis of a male patient. The man had come to him complaining of a pain located in the lower part of his back and extending down to the hip joint. He stated that some months previously, in attempting to prevent himself from falling, he had felt something tear on his right side. From that time a steady aching had persisted. The speaker, on examining, found a sharp piece of bone protruding, which he took for an exostosis. An operation was done for the removal of this growth, when it was found that, while the body was of a bony consistence, its attachments to the pelvis were fibrous.

Gastrostomy by von Hacker's Method for Carcinoma of the Œsophagus.—Dr. Weir presented a stomach showing the technique of a gastrostomy after the method of von Hacker, of Vienna, which had been performed by him on May 16th, of this year, for the relief of starvation induced by carcinomatous stricture of the œsophagus. The patient was a man, fifty-eight years of age, who had had symptoms of dysphagia for nearly a year. In March he was first seen by the speaker, when swallowing had become impossible. A stricture was recognized ten inches and a half from the incisor teeth, and through this was passed, by Mixter's instruments, one of Symonds's flexible open-ended tubes, No. 14. The tube was worn but a short time, as it caused much pain and distress, though the patient could swallow milk and gruel well with it in. It was removed in about ten days, when he disappeared from observation, but returned in three weeks with the statement that his ability to swallow had continued fairly good until some days previously, when it had again nearly if not quite ceased. A second tube, No. 15 English, was passed in and deglutition immediately became easy. In a few days pain and stiffness of the neck were complained of, and, though tubes of different sizes were used, yet it was apparent that the use of tubage would have to be abandoned, as the stenosis was so near the cricoid that the ordinary tube, as well as plain rubber ones, could not be borne. Gastrostomy was advised and performed, according to von Hacker's method, by an incision beginning an inch to the left of the median line and an inch below the ensiform cartilage. The selected portion of the anterior wall of the stomach was drawn out through the separated fibers of the rectus muscle and held beyond the skin by a pin, purposely traversing the mucous as well as the other coats of the stomach, so as to serve as a guide when the opening into it should be made, either immediately after the placing of the sutures uniting the gastric peritoneal surface to the surrounding parietal peritonæum, or, as was intended here to be done, after forty-eight hours. For, from the passage of a No. 16 bougie a few days previous to the operation, and also from the rest and the persistent use of boiled milk and water, the œsophageal irritation had sufficiently subsided to admit fluids into the stomach, and these and nutritive enemata were relied on for his sustenance. The operation passed off without complication, and the patient did fairly well till the third day, when the opening of the stomach was intended to be made, but before this was attempted he died suddenly from cardiac syncope. The autopsy showed extensive circular ulceration of the œsophagus, running from just below the cricoid level downward. The stomach and its surroundings were free from peritoneal or mucous inflammation. The speaker considered this method and Hahn's, through the last costal interspace, at its most anterior part, the only two that prevented the annoying escape of the irritating stomach contents. The objection to Hahn's procedure was that necrosis of the cartilage was apt to take place. Gastrostomy had become a rare necessity, since tubage afforded relief from the obstructive symptoms in most cases.

The speaker reported in this connection a recent case where tubage had been successfully applied in a stricture of the œsophagus just below the cricoid, affording comfort in swallowing, nineteen weeks after the first total arrest of deglutition—that was to say, up to the patient's final failure from the disease, and not from starvation. He thought that as soon as it was proved that tubage was not of service gastrostomy should be employed. If done early, the mortality of the latter operation was not very great, especially when it was possible to do the operation in two stages.

Artificial Anus through the Rectus Muscle.—Dr. Weir presented a young man, twenty-six years old, on whom he had made an artificial anus, in an inoperable case of high carcinoma of the rectum, with occasional attacks of obstruction, each becoming more severe. After the termination of the last one of these, opening of the bowel above the obstruction was proposed to the patient and accepted by him. The speaker said that, from the excellent results he had obtained in a case of gastrostomy done by him some five months ago, for œsophageal stricture through the rectus muscle, as described in presenting the preceding case, he was led to place the opening in the colon similarly in the left rectus muscle just below the umbilicus and near its outer margin. In addition to the sphincteric action sought for by this procedure, he had also carried out in part Maydl's suggestion of pulling out the sigmoid flexure until its upper mesenteric attachment was taut and no more would come out, when the loop of bowel was secured to the opening in the abdominal wall and held up, in addition to the few stitches used, by a glass drainage-tube covered with iodoform gauze thrust through the mesentery just below the bowel. He had not in this case, as he had done in two others recently, pulled out in a similar way the bowel running toward the rectum, which Maydl stated would also, like the traction above, prevent the usual troublesome prolapse of the mucous membrane from the artificial anus. The opening was not usually made at once in the large intestine thus brought out and fastened, but after several days (in this instance five days) the projecting portion was cut off under cocaine. This left in the abdominal wound two separate openings like those of a double-barreled gun. By this procedure not only was a prolapse generally prevented, but the escape of fæces into the lower bowel positively obviated. If, before the final opening of the bowel, the patient was tormented by gas or fæces, which, however, would often roll over the upholding glass rod and pass downward, a small incision could be made with a knife near the upper bowel and relief afforded until the adhesions were strong enough to bear the final cutting away of the projecting bowel and the removal of the glass tube. In the present case the retention of fæces was very satisfactory, as none escaped save at the daily stool. The openings admitted only the tip of the finger, which was firmly grasped and at times firmly held. The speaker commended Maydl's procedure, which he had now employed in nine cases, the greatest length of the large intestine removed being nine inches. This secondary operation was best done after a period of at least a week from the primary abdominal section. He thought that in cases where the mobility of the sigmoid would allow of it, the use of the rectus muscle should thus be resorted to. In all cases, at the secondary operation, after the ablation of the redundant intestine, a V-shaped portion of the mucous membrane should be removed from the lumen of each intestinal opening, so that the opening finally left should not be unduly large. A patency admitting the end of the finger was ample in the upper opening. In the gastric fistula alluded to before there had not been, in the last five months, any escape of the stomach contents—a condition only possible, it was believed, after von Hacker's or Hahn's method of gastrostomy.

Book Notices.

Regional Anatomy in its Relation to Medicine and Surgery. By George McClellan, M. D., Lecturer on Descriptive and Regional Anatomy at the Pennsylvania School of Anatomy, etc. Illustrated from Photographs taken by the Author of his own Dissections, expressly designed and prepared for this Work, and colored by him after Nature. In two volumes. Vol. I. Philadelphia: J. B. Lippincott Company, 1891.

The importance of a good knowledge of anatomy is acknowledged and will not be gainsaid by any practitioner of medicine, although he may at the same time bewail that his own knowledge of this subject has oozed away and uncertainty and ignorance have taken its place. Such a man, able to appreciate his own ignorance, will be glad to obtain this work and refresh his memory by a frequent consultation of its excellent text and still more excellent plates. Anatomy, as the study is usually pursued, is dry, but regional anatomy, or the anatomy of the different regions of the body individually considered, in the relations of their parts to each other, is abundantly interesting. The present volume treats of the various regions of the upper parts of the body. The consideration of the region of the head, which occupies the first sixty pages, includes that of the form, structure, and landmarks of the skull, its outer covering, the fissures and convolutions of the brain, cranio-cerebral topography, and the internal parts of the brain. This is not written in the excessively technical language affected by some authors on cerebral anatomy, but the terms most commonly used and most easily to be understood have been employed, a desideratum of no mean importance for most practitioners.

Sufficient space is devoted to the regions of the eye, ear, nose, larynx, and other special regions, as well as to the face, its landmarks, superficial and deep, before arriving at the region of the neck. The regions of the thorax, of the various parts of the upper extremity, and of the diaphragm complete this volume.

The illustrations, arranged in fifty-three plates, were expressly prepared for this work from photographs of the author's own dissections, and colored under his personal supervision. They are very correct presentations, and, though they can not equal in value the actual dissection, they make a creditable attempt to supply its place.

The book is well got up, printed on good paper, and with due regard to the fine work of the plates. It is well worthy of a large sale.

BOOKS, ETC., RECEIVED.

A Treatise on Practical Anatomy: for Students of Anatomy and Surgery. By Henry C. Boenning, M. D., Lecturer on Anatomy and Surgery in the Philadelphia School of Anatomy, etc. Illustrated with 198 Wood Engravings. Philadelphia and London: F. A. Davis, 1891. Pp. xvi-481. [Price, $2.50.]

Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book specially adapted for Stu dents of Pharmacy and Medicine. By W. Simon, Ph. D., M. D., Professor of Chemistry and Toxicology in the College of Physicians and Surgeons, Baltimore, Md. Third Edition, thoroughly revised. With Forty-four Illustrations and Seven Colored Plates, representing Fifty-six Chemical Reactions. Philadelphia: Lea Brothers & Co., 1891. Pp. xii–17 to 479.

Ptomaines, Leucomaines, and Bacterial Proteids: the Chemical Factors in the Causation of Disease. By Victor C. Vaughan, Ph. D., M. D., Professor of Hygiene and Physiological Chemistry in the University of Michigan, and Frederick G. Novy, Sc. D., M. D., Assistant Professor of Hygiene and Physiological Chemistry in the University of Michigan. Second Edition, revised and enlarged. Philadelphia: Lea Brothers & Co., 1891. Pp. x–13 to 391.

An Introduction to Human Physiology. By Augustus D. Waller, M. D., Lecturer on Physiology at St. Mary's Hospital Medical School, London, etc. London: Longmans, Green, & Co., 1891. Pp. x–612.

Leprosy. By George Thin, M. D. London: Percival & Co., 1891. Pp. ix–280.

On the Pathology and Treatment of Glaucoma, being a Revised Publication, with Additions, of the Erasmus Wilson Lectures, delivered at the Royal College of Surgeons of England in March, 1889. By Priestly Smith, Ophthalmic Surgeon and Clinical Lecturer on Diseases of the Eye, Queen's Hospital, Birmingham. With Sixty-four Illustrations by the Author, and Twelve Photo-zincographs. London: J. & A. Churchill, 1891. Pp. xi–198.

History of Circumcision from the Earliest Times to the Present. Moral and Physical Reasons for its Performance, with a History of Eunuchism, Hermaphrodism, etc., and of the Different Operations practiced upon the Prepuce. By P. C. Remondino, M. D. (Jefferson), Member of the American Medical Association, etc. Philadelphia and London: F. A. Davis, 1891. Pp. x–346. [Price, $1.25.] [No. 11 in the *Physicians' and Students' Ready Reference Series.*]

A Practical Treatise on the Diseases of the Ear, including a Sketch of Aural Anatomy and Physiology. By D. B. St. John Roosa, M. D., LL. D., Professor of Diseases of the Eye and Ear in the New York Post-graduate Medical School and President of the Faculty, etc. Seventh Revised Edition. New York: William Wood & Co., 1891. Pp. xxii–741.

Pulmonary Tuberculosis, Ætiological and Therapeutic. Based on an Experimental Investigation. By R. W. Philip, M. A., M. D., F. R. S. E., Fellow of the Royal College of Physicians, Edinburgh. Edinburgh and London: Young J. Pentland, 1891. Pp. iv–55.

An Abstract of the Symptoms, with the Latest Dietetic and Medicinal Treatment, of Various Diseased Conditions. The Food Products, Digestion, and Assimilation. The New and Valuable Preparations manufactured by Reed & Carnrick. New York: Reed & Carnrick, 1891.

Traité de médecine. Publié sous la direction de MM. Charcot, Bouchard et Brissaud. Par MM. Babinski, Ballet, Brault, Chantemesse, Charrin, Chauffard, Gilbert, Guinon, Legendre, Marfan, Marie, Mathieu, Netter, Oettinger, André Petit, Richardière, Roger, Ruault, Thibierge et Fernand Widal. Tome 1. Par MM. Charrin, Legendre, Roger, Chantemesse et Fernand Widal. Avec figures dans le texte. Paris: G. Masson, 1891. Pp. viii–957.

Observations on Koch's Lymph. By Joseph Jones, M. D., New Orleans.

A Case of Disseminated Sclerosis, presenting the Clinical Aspect of Primary Spastic Paraplegia, with Atrophy of both Optic Nerves. By Dr. Charles Zimmermann, Milwaukee, Wis. [Reprinted from the *Archives of Ophthalmology.*]

One Thousand Cases of Labor and their Lessons. By G. W. H. Kemper, M. D., Muncie, Ind. [Reprinted from the *Medical News.*]

Five Cases of Suprapubic Cystotomy: Three for Stone, One for Tumor of the Bladder, and One for Exploration, with Catheterism of the Ureters; One Death. By W. W. Keen, M. D., Philadelphia. [Reprinted from the *Medical News.*]

On Syphilis of the External Ear. By Adolph Rupp, M. D., New York. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

An Address delivered at the Opening of the Twenty-first Annual Meeting of the Medical Society of the State of California, April, 1891. By W. R. Cluness, M. D., President, Sacramento, Cal. [Reprinted from the *Occidental Medical Times.*]

Contributions to Mechanico-therapeutics and Orthopædics. Edited by L. Wischnewtzky, M. D. Vol. I, No. 1. The Mechanico-therapeutic Institute. By Dr. Gustav Zander, in Stockholm. Vol. I, No. 2. Mechanico-therapeutics and Orthopædics by Means of Apparatus. By Dr. Gustav Zander. Vol. I, No. 3. The Mechanical Treatment of Chorea. By Dr. Herman Nebel. Published by the Mechanico-therapeutic and Orthopædic Institute, New York.

The Ocular and Tactile Demonstration of Urethral Lesions by the Aid of New Instruments. Shown with Cases. By F. Tilden Brown, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

Bald Heads. By Albert E. Carrier, M. D., Detroit. [Reprinted from the *Proceedings of the Michigan State Medical Society*, 1891.]

Observations on Rational Therapeutics. By S. Henry Dessau, M. D. [Reprinted from the *Medical Record.*]

The Treatment of Croupous Pneumonia in Children. By S. Henry Dessau, M. D. [Reprinted from the *Archives of Pædiatrics.*]

Twenty-second Annual Report of the President of the Inebriates' Home, Fort Hamilton, N. Y., for the Year 1889.

New and Improved Galvanic and Faradaic Batteries with New and Original Electrodes in the Treatment of Narcotic Habitués. By J. B. Mattison, M. D. [Reprinted from the *Weekly Medical Review.*]

Miscellany.

Physicians should dispense their Own Medicines.—In a leading article, the *Medical News* for November 28th says in support of this proposition:

1. *Chemical and pharmaceutical science and art have reached such perfection that it is now possible and even convenient to do so.*

In former times, in order to get the physiological actions and therapeutical effects of a drug, it was necessary to give large doses, the essential principle being mixed with large quantities of neutral or alien matters. The impossibility or inconvenience, therefore, of carrying with one an outfit of medicaments sufficient to meet any emergency that might arise, differentiated the professions of medicine and pharmacy, and created a dependence of the physician upon the druggist that at the present time and under changed circumstances is working injury to the medical profession. It is to-day possible to carry in one's vest pocket a supply of concentrated alkaloids and extractives of all the chief articles of the modern materia medica, amply large and sufficiently varied to cope with all ordinary cases of disease that one may be called to see. Pharmacological science has of late made wonderful progress, and the richness and diversity of the elegant preparations made by the best laboratories excite genuine surprise and praise. To hand the patient the day's supply of these marvelous little triturates, discs, pellets, tabloids, or alkaloids is less trouble than to write a prescription.

2. *It saves the patient money and trouble.*

And why should we not desire to do this? To the vast majority of patients the question is one of great importance. The druggist's bill is doubtless small enough, but it is often unnecessary. Not only the very poor, but even those not poor, feel sufficiently the loss of time and labor incurred in the course of any illness; the worry and care are poignant enough without the unnecessary addition of the apothecary's charge. The interests of patient and doctor are closer than those of doctor and apothecary, and our solicitude for the patient may reasonably be extended to such pertinent things. The sacrifices of loved ones for their sick constitute one of the most pathetic of the many things that touch the heart of every sympathetic practitioner. It is but the simplest duty to spare them a useless addition to the burden.

The druggist must charge about the same for the filling of a prescription either for a small or large quantity of medicine. In acute diseases one kind of medicine is required for but a few doses, when a change is demanded. There is a rain of new prescriptions, much expense and trouble is caused the patient, and the accumulation of bottles of unused medicines produces malevolent suggestion and discontent. All this is different when the day's supply is given with the day's visit. The plan also adds but the slightest amount, or none at all, to the physician's expenses. These preparations are almost absurdly cheap. Even if no additional charge be made, the increased practice resulting would fully compensate the little and temporary increase of professional expense.

3. *The ordinary character finds it hard to pay for simple advice.*

The average person, and even many of the best of our patients, feel some resentment when called upon to pay for advice pure and simple. In matters non-professional everybody is so more than willing to give everybody else the article wholly gratis, that to many it seems like impertinence to ask payment even for the medical variety. The quack, with his unrivaled scent for the foibles of human nature, has profited by this fact, and even if he give only smells and oceanic dilutions of an essential principle, the medicine, or supposed medicine, is given—*with* the advice, and the patient is grateful for getting *something* for his money. Among the little things that, as causes of professional success, we in our short-sightedness are prone to overlook, this little factor has doubtless been wondrously effective in biasing the minds of many patients for so-called homœopathy. Placebos and imagined therapeutics form the essential element of many a hoary and tattered medical joke, and the corresponding psychological fact must be well rooted in human nature. It therefore obtains that even if no more worthy and weighty reason existed, one might gladly throw this innocent sop to Cerberus. But, happily, better reasons do exist.

4. *In emergency cases and in severe forms of acute disease time is saved and the disease more effectually withstood by the immediate administration of the needed remedy.*

Every practitioner knows that in many cases greater promptitude in the administration of the medicine would be a decided gain in the control of the disease. Doubtless many a critical stage has been passed in which life might have been saved had the needed drug been at hand and immediately given. The trip to the pharmacist and the *de novo* preparation of the compound by him (already prepared and in a hundred forms already present on the druggist's shelves!) waste valuable time. In country practice, especially, this is a very important consideration.

5. *The accidents of prescription-writing and of prescription-filling are lessened, while at the same time (with proper care and watchfulness over laboratory preparations) the efficacy and physiological effects of drugs are assured.*

It needs no mention of the self-evident fact that if prescriptions are not written, there will be no mistakes made in writing them, in reading them, or in compounding them. The frightful accidents almost daily happening, the sorrow, and the medico-legal misery consequent thereupon, would not exist. A physician would hardly make a blunder in giving the drug himself, and the possibility becomes almost *nil* when we recollect that the dose is parceled out and labeled in the pharmaceutical workshop and with an accuracy unapproachable by the apothecary.

It would follow that to have trustworthy assurance of standardization, solubility, etc., the medical profession should be able to certify to its members the preparations of certain manufacturers as reliable. At present there are a number of manufacturers whose products are beyond suspicion. A plan should be agreed upon by the two interested professions whereby the desired guarantee could be given, watchfulness secured, and the dangers of commercial avarice averted.

There would necessarily follow—and, indeed, it should long since have been routine—that medical students should be instructed in the values and varieties of these preparations, and before graduation should become entirely familiar with them. The elder teaching of materia medica, the mediæval pottering over botanical and laboratory trivialities, must give way to civilized ways and to the *knowledge of the use of finished products.* The pharmacologist and the chemist are noble allies and helpers, but they are not physicians, nor, if excelling in their work, have they time to be. Neither has the clinician the time to do their work. The professions are henceforth different. As to the drugs he uses, it is now no more requisite that a physician dig the roots and herbs, or execute the thousand chemical and pharmacological manipulative details required in the perfection of his preparations, than that as to his knives and forceps he should dig the iron, smelt and temper it, and learn the thousand technical details of the instrument-maker's art. With its infinite differentiation of function, civilization has rendered all this useless. The physician's task is to intelligently use the instruments (triturate, tablet, alkaloid, or surgical knife) furnished him by his friends and allies, the chemist, the pharmacologist, and the instrument-maker. If these shirk their duty, there are speedy and effective ways of punishment.

And if commercialism is suspected of bribing the teacher, that, too, will come to a righteous ending.

6. *It will lessen the evils of hospital abuse, drug-store doctoring, the system of druggists' commissions to physicians, and of counter-prescribing.*

There can be no doubt that the wretched hospital abuse—that encouraged parasite that is sucking the life-blood of his foolish host—is largely a product of this unnecessary exaggeration of the mechanics of treatment. Doctor and druggist are, in combination, "too much for" many poor souls that can so easily escape the charges of both by the debauching charity of their sentimental pauperizers. The young practitioner thus denied his legitimate *clientèle* by those who should be his helpers may take a hint. He will secure the gratitude of his patients and increase their number by dispensing his own medicine.

The drug-store doctor can thus legitimize his ways, and, instead of turning his prescription over to his clerk to collect the fee by a double charge for the drug, he may charge for advice *with* medicine and not be ashamed to look at himself in the mirror.

"Division of the spoils" by druggist with doctor—more common, alas! than we like to know—would thus be checked, and probably the sponger of medical advice would get ashamed to pester the druggist and the soft-hearted physician.

It may perhaps be said that the plan is nowadays beneath the dignity of the aristocratically inclined modern physician. If that be the sole argument against it, the answer would be brief and pointed: Dignity to the dogs! The physician that in such matters thinks first of his dignity is a square peg in a round hole. He is out of touch both with his countrymen and with his fellow-practitioners.

It is by no means contended that the plan advocated can have an absolute and unexceptional realization. Judgment must modify all hard and fast rules. In cities where competent pharmacists and full supplies are close at hand, it may be preferable to continue the older method. But the city is a small part of the country, and those desiring to adopt the plan suggested may feel every warrant of good reason to justify their practice of it. It is both good morals and good medicine.

A Criticism of New York Nurses' Training Schools.—In the Cleveland *News and Herald* for November 16th there appeared an article signed by the Rev. George H. Peck, under such startling head-lines as "Massacre of Nurses," "How Young Women are exposed to Infection and broken down by Overwork," and "Several Instances in which Young Lives of Promise have been Wrecked." We reproduce the article with all its typographical and other errors, as follows:

For the Leader.

"THE MASSACRE OF NURSES."

"She had hoped to befriend misery, to bring help and healing to pain from the first days of her apprenticeship. What she actually set to do was to scald babies' milk cans."

"Through all ran the bad food, the scanty sleep, the insufficient hours of recreation, the cruelly long hours assigned for work, the nervous strain of supporting life from the merely physical point of view."—*Rudyard Kipling.*

The above title, furnished by a wise editor, is sufficiently alarming to arrest the attention of the most casual reader. Would that it had meet my own eyes but twenty short months ago. At present I am only anxious that others may profit from that which has cost me so dear.

In September *Fortnightly* is an article "On the Origin, Propogation, and Preservation of Phthisis," by Professor Tyndall, which is quoted at length in the October *Review of Reviews.* The article is mainly based upon facts drawn from the experiments made by Dr. Georg

Cornet, a colleague of Dr. Koch at the Imperial Sanitary Institute at Berlin. It seems almost incredible that it is only nine years since experiments revealed the fact that the tubercle bacillus or cause of consumption was made known to the world for the first time. And it seems still more incredible that public prints of all kinds, religious and secular, are not more in earnest to blaze abroad the dangers therefrom that the ravages of this deadly disease may be arrested, and human sorrows alleviated by wise precautions. When we reflect that more than half the race die of consumption, and when we contemplate the ceaseless procession of death that is passing along the centuries, it would seem wisdom to turn aside for a time and seek to instruct humanity in the divine art of self protection.

As society has developed, various benevolent institutions have been projected to alleviate the ills of mankind—medical colleges and hospitals have multiplied. As adjuncts to these, training schools for nurses have more recently been organized, either with or apart from medical schools and colleges. Many young women from various motives of gain or benevolence have entered these schools and given their lives to this work of nursing. Whatever may have been their character or efficiency, certain is it that latterly many daughters from refined Christian homes have chosen this occupation as a fitting field to achieve a life mission.

The very choicest of our Christian young women have been captivated by this new and growing field of opportunity. It is in relation to such that this article has special significance. Our daughters trained to the tender refinements of Christian courtesy and kindness know not what they do when they enter these dens of infection where death lurks in every breath. If they could forecast the future but from one to seven years, or, more likely, from one to two or three years, and see themselves wrecked in health or cold tenants of the tomb, with all their promises blighted and blasted; if they could not foresee the shocking sights presented to delicate sensitive nerves, the coarse treatment to be received at the hands of irresponsible officials, the overwork oft causing them to faint and fall in the weary rounds of an occupation which is always tugging at the heart strings, and, above all, if they could but see the sorrow wrought upon those that mourn a beloved daughter's sad and cruel taking off, they would draw back in horror from the thought of entering upon the occupation of a trained nurse, or any hospital work, with its destructive and deathful tendencies. No matter how great the care exercised, no matter how kind the administration, the occupation of a nurse is the most deadly of all occupations known to man or woman. When, in addition to its inherent evils, the officials and physicians are unsympathetic and even brutal, the evils are multiplied.

The quotation from the brilliant Rudyard Kipling is a revelation of that which is liable to occur constantly in the life of a nurse in training. Her high aspirations are met with menial duties and duties which are unlikely to have any part in her future high calling. She is the victim of an irresponsible system, of coarse officials, hiding themselves behind the pretentious screens of medical or post-graduate science and Christian charity. It is far from my intention to wound noble-minded physicians, or to injure their influence before a thinking or charitable public, but I am sure that all such sympathize with me in my efforts to correct these grave abuses. Some of these hospitals are humanely conducted, while others have the name of building up a reputation on the blood of young women in ostensible training for nurses. The New York Hospital has an excellent name, while other hospitals of that great metropolis are mainly known as death traps. They are far too willing to kill the noble nurse in order to save the often ignoble patient. To kill the nurse means little, to save the patient means medical reputation, and constantly they sacrifice our daughters to save their dollars. The institution which slaughtered my daughter has a reputation for doing the deadliest kind of work. This is the calm, cool testimony of those who wish its welfare. Personal observation has taught me that some hospitals are kindly and humanely conducted. The Huron Street Hospital in Cleveland is one of such. The patients and nurses are in the hands of physicians and officials who exercise alike a skillful and kindly regards for their welfare. These are the men who desire humanity and reform and progress on all lines that pertain to medical science and treatment.

Professor Tyndall, following Dr. Cornet, has presented the dangers attending the spread of consumption, especially in hospitals. His words are priceless value to the general public. Nine years ago Dr. Cornet found this field practically unoccupied. The German nurses seemed doomed to early death. He proved that consumption is communicated not by heredity, but by contact. The nurses were in the midst of contagion, daily being poisoned by the infected atmosphere of the hospital. Neither the breath nor damp matter is so dangerous, as the sputae that is spit upon the floor or in pocket handkerchiefs. This dries and the bacilli or living germs may settle upon the floor or furniture, and during the dusting or sweeping rise in the air and be drawn in with the breath, and the infection is complete. The Professor says that billions, billions of bacilli are expectorated by every consumptive until the ordinary room occupied by such a patient must be filled with the seeds of this deadly disease. Every living germ of these billions retains its virulence about six months waiting for congenial soil in the lungs of some unsuspecting mortal. We have no need to press the law of hereditary disease in the presence of such facts, nor need we wonder that more than half the race dies of consumption.

Dr. Cornet found it difficult to make his observations in Protestant hospitals because the nurses were so often changing location. Therefore he made his experiments in German Catholic Hospitals, and the results were sufficiently startling to alarm the civilized world. More than half the deaths in the thirty-eight hospitals were found due to tuberculosis alone. How many died of other contagious diseases? "A healthy girl of seventeen, devoting herself to hospital nursing, dies on an average twenty-one and a half years sooner than a girl of the same age in the general population. A woman of twenty-four will live twenty-two years longer in the outside population than what she would do if she were a nurse in a hospital. Hence he concludes "nursing is one of the deadliest occupations known to man, or rather to woman." Statistics concerning American nurses would be difficult to obtain, but can it be for a moment supposed that the mortality is any less, with all the careless and reckless methods of American life? How deadly the American training school and hospital may be to the nurse, has been written for me in letters of blood.

My daughter entered a post-graduate medical training school in New York city in September, 1890, and in five months her health was wrecked beyond recovery. When her mother reached New York in February these wise (?) instructors were feeding her quinine to whip up her flagging powers instead of sending her to a sick bed. Even then she was wasting with hectic fever, but they treated her two months thereafter for typhoid. Then she came home utterly exhausted and physically wrecked. During the following five months she slipped from our arms into the grave in spite of all we could do to arrest that fearful disease called quick consumption. We feel, indeed, that she was criminally massacred. She was large and full of vitality, and with ordinary care might have lived many years to do grand service with her unusual powers and kindly heart, but they cruelly betrayed her confidence, broke her down with overwork until within the doors of the training school she found the gates of death. Nor is her case unusual. In the same sick room with her lay another nurse with the same deadly, hopeless disease. Indeed, the cemeteries are lined with dead nurses, and many homes are mourning over wrecked and blasted lives, destroyed in the name of medical science. Indifferent food, cold and crowded rooms at night, overwork, the lagging forces stimulated by quinine until no constitutional force remains—this is the process of *massacreing* nurses practiced in New York in the name of Christian charity and medical science.

Thus unwarned of their dangers and unprotected in their work, our daughters enter these slaughter-houses, not to be treated as ladies but as scrubs, and are often subjected to indignities that makes us wonderingly ask, "What is the ideal training of a post-graduate medical school?"

This training in some hospitals means polishing the faucets and dusting the furniture, and low menial duties entirely apart from any sensible training.

As I write I am warned that my experience alone does not make out a case. Permit me to say that cases of wreck and of cruelty similar to that of my daughter are constantly coming to my knowledge.

Only this week the case of a young lady who entered a Cincinnati hospital was told me. In six short weeks they sent her home a wreck. Another lady near this city went four months to a nurses' training school at New York and came home a physical wreck. And here let me say that I desire further certified cases from the public at large, in order to expose and correct these crimes committed in the name of medical science and Christian charity. At best, nursing is a deadly work and demands the best of care for the nurses. Let those institutions live that deserve to live, and let them be well sustained by a generous public, but let those that maltreat their nurses by paying starvation wages and overworking them be reformed or suppressed as a crime against humanity.

What a shame it is that in this day of progress a nurse should be called upon to serve twelve hours a day in the deadly infected atmosphere of a hospital. Three years of such practice would doubtless kill every doctor that permits the massacre. Some hospitals take girls of all ages. This is a crime against those that enter upon their work too young. From fifteen to twenty-five or thirty is the period peculiarly liable to quick consumption. The flesh is soft, and the bacilli work with fearful rapidity. With the awful death-rate in hospital work before us, why should it not be a criminal offense to allow an unsuspecting girl to place herself in the atmosphere of such infection? The New York Hospital refuses to receive a girl under twenty-five years to this training. Thirty would be a far safer age. And with the facts before them, who is responsible for holding nurses twelve hours a day amid such deadly infection? Said a wise physician to me: "Six hours a day service would require double force." So they massacre our daughters to save their dollars. The training schools and hospitals are always short-handed, hence double work is quite likely to be the rule. Is it any wonder that the editors write of "The Massacre of Nurses"?

The hospital has come to stay, with its adjunct, the training school, but what a monstrous abuse is it, that what might be so helpful an agency should be perverted into so destructive an engine. To save our daughters, and to conserve these institutions to usefulness, they should be subjected to rigid State supervision. To support many of them as at present conducted is to have complicity with the murders they commit. At the door of every training school for nurses, and of every hospital with a similar adjunct, should stand the State Inspector faithfully portraying all the possibilities of this infectious occupation to any girl desiring to be a trained nurse. Each one should be asked, "Do you know that, in entering upon this work, you literally take your life in your hand? Do you know that more than half the trained nurses die of consumption? Do you know that from one to five years is quite likely to end your life with some vital disease if you choose this occupation? Do you know that if you pass through the two years of training you are likely to be a physical wreck afterward, and your life a burden to yourself and friends? Above all, however high and holy your motives, are you willing to be treated as if the sacrifice of your life were of small consideration, by coarse men and women who cannot appreciate your high ideals? If you answer "Yes," then enter and have health, if not life behind, for ample statistics prove them to be the possibilities.

At the close of Professor Tyndall's article is written these words, quoted from the London *Times*:

"The most pressing work of sanitary reform is not now so much to legislate as to educate; to make the masses of the people, in some degree, participators in the knowledge of the causes of disease, which is possessed by men of science."

But where are our American scientists and why are they so silent upon this deadly work being done in our hospitals and in our homes by careless and criminal directors and officials?

To all young women desiring to enter upon the profession of a trained nurse I would say, if you desire to live and possess health keep far away from the majority of training schools for nurses and all hospitals, and remember especially that this occupation has no place for sensitive nerves or tender hearts. What is called "a sensitive," as was my daughter, is likely very soon to succumb to over much feeling and work. Cast iron nerves and hearts are in great demand here. And to parents I say if you love your daughters keep them far away from this occupation. Its ideal is high and holy, its general realization low and unholy. If your daughters will go examine well the claims and history of the institution whose doors you permit them to enter, lest with us and many others you be left to mourn uncomforted. It is an unutterable surprise to parent and child to find that which seemed the very gate of heaven only the gate of remorseless death.

The New York Academy of Medicine.—The paper announced for the last meeting, on Thursday evening, the 3d inst., was on Drainage of the Uterus in Chronic Endometritis and Metritis, with and without Salpingitis, by Dr. William M. Polk.

At the next meeting of the Section in Genito-urinary Surgery, on Thursday evening, the 10th inst., papers are to be read as follows: Tannate of Mercury in the Treatment of Syphilis, by Dr. C. W. Allen; Diabetes Insipidus, by Dr. J. A. Fordyce; and Personal Observations upon Enlarged Prostates and their Relief by Operation, by Dr. Seneca D. Powell.

At the next meeting of the Section in General Surgery, on Monday evening, the 14th inst., Dr. F. Kammerer will report A Case of Sacral Hysterectomy, and Dr. A. B. Gallaudet Two Cases of Brain Abscess successfully treated by opening the Skull and Drainage.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, December 12, 1891.

Original Communications.

DISEASES OF THE URINARY APPARATUS.

By JOHN W. S. GOULEY, M.D.,
SURGEON TO BELLEVUE HOSPITAL.

(Continued from page 628.)

PART I.—PHLEGMASIC AFFECTIONS.

III.

Summary of the Ætiology, Semeiology, Diagnosis, Prognosis, Prophylaxis, and General Therapeutics of Diseases of the Urinary Apparatus.

The results of an examination of the morbid processes of the urinary apparatus having been stated as a preliminary step to the study of special affections of particular organs, further inquiry into general principles is necessary to the elucidation of the ætiology, semeiology, diagnosis, prognosis, prophylaxis, and therapeutics of these affections. This study presupposes a fair knowledge of anatomy, physiology, and pathology; otherwise the labor would be vain.

The causes of diseases of the urinary apparatus are intrinsic and extrinsic.

Examples of intrinsic causes are disorders of the nutritive apparatus, the gouty diathesis, malformations, etc.

Examples of extrinsic causes are contagion, parasitic invasion, injuries, the lodgment of foreign bodies, and poisons.

The so-called predisposing causes may be intrinsic or extrinsic. Among these causes are pre-existing diseases of organs other than the urinary, such as the lungs, the heart, or the liver, intemperance, filthy habits, etc. Predisposition is now better understood by the broad term vulnerability. For example, any disease of an organ which causes passive congestion in another organ renders this organ vulnerable—that is to say, more easily invaded by structural disease. Intemperance in strong drink leads to diseases of the liver as well as of the urinary apparatus. The drunkard, already made vulnerable by the poison alcohol, is often so much exposed to the severity of the weather that his urinary apparatus is thereby made more susceptible to disease. He is apt to be careless in his personal habits and to leave his external genital organs in an unwashed and filthy state which renders them particularly vulnerable.

The same individual may be more vulnerable at certain times than at others, and many circumstances may arise to increase this vulnerability, such as a transitory disorder of any of the functions. He is likely to be less vulnerable when his bodily functions are normal.

Diseases of the urinary apparatus may arise primarily, as, for instance, a phlegmasia, a neoplasma, a blastoma, a parasitic invasion, etc.; may be consecutive to a general dyscrasia, or to disease of an organ of the same or of another apparatus, as in the case of a stenosis, an ectasis, a concretion, a cyst, a functional disturbance, etc.; may be the outcome of injury or may be a disorder of the function of the apparatus from parasitic invasion, from an injury, from a teratism, or from a poison.

The symptoms of disease of the urinary apparatus are subjective and objective.

The varieties of subjective symptoms perceived are proportionate to the degree of sensitiveness, intelligence, and power of observation of patients.

Young children perceive pain only, and give it expression by an outcry.

Stolid, stupid, ignorant, degraded men are ordinarily little sensitive to pain, and unable to give a satisfactory account of their condition.

Pusillanimous adolescents are unduly demonstrative of pain, even when it is slight, while courageous, plucky youths when in great suffering make little or no complaint, but the facial expression betrays their distress.

There are neurotic, hysteroidal adults who suffer more from apprehension of pain than from the pain that exists, or that may be inflicted during a physical exploration. The management of these algophobists is tedious, difficult, harassing, and requires tact, patience, forbearance, delicacy, and gentleness; but, above all, it is necessary that the patient have the greatest confidence in the ability and integrity of the physician. Once convinced that he is not to be injured, he becomes docile and submits to treatment with no further anxiety.

In some cases a tumefaction, if not painful or tender, is unnoticed by the patient for a long time.

Emaciation, however, seldom escapes the patient's attention.

Hæmaturia, pyuria, dysuresis, aconuresis, ischuria, hyperlithuria, sychnuresis, polyuria, and oliguria, though functional disorders, rank also as symptoms which are perceivable by the patient.

Symptoms are often so inaccurately detailed by patients that the physician is obliged to subject them to the most rigid cross-examination in order to obtain trustworthy information.

Objective symptoms are perceived by the physician from answers to well-directed questions, from ocular and manual inspection, and from examination of excretions.

A symptom denoting invariably the existence of a particular disease becomes a sign. Such symptoms are few, and are called pathognomonic. It should be remembered that the symptom belongs to the senses and the sign to the understanding. The patient perceives certain symptoms, but the physician alone can interpret them and detect a sign.

The diagnostic symptom, that manifestation which occurs more frequently in connection with a particular disease than with other diseases, is appreciable only by the physician.

Prior to the analysis of symptoms, close inquiry should be made into the history of the patient and the history of his disease. His constitutional peculiarities, inheritance of disease, previous diseases, occupation, age, and habits, and the possible existence of organic disease other than urinary, should form the basis of the inquiry into the history of the patient.

The history of the disease for which the patient invokes assistance is the next step in the inquiry. The date of prodromic symptoms and of other manifestations is noted, and the history of the disease traced down to the present. Then questions are asked relating (*a*) to the seat, character, degree, and duration of pain, (*b*) to disordered urination, (*c*) to the amount of urine passed each day, and (*d*) to the general characters of the urine.

(*a*) PAIN occurs in nearly all the affections of the urinary organs. It is often the first symptom perceived, and it is ordinarily for its relief that the patient seeks advice. Therefore the physician should be precise in ascertaining the time and circumstances of its inception, and in learning its seat and character; whether it is intermittent or continuous, dull or acute, aggravated or not by exercise, intensified or not in the night; whether it occurs before, during, or after urination, or is independent of urination.

Pain deeply seated in the lumbar region may be dull or acute.

Dull pain in this region indicates a lesion of slow development—as, for example, hydronephrosis or pyonephrosis, chronic pyelo-nephritis, chronic retention of urine in the bladder, etc.

Acute pain is felt in the lumbar region and vicinity, and also along the course of the ureter, during the migration of a urolith or from any cause of sudden obstruction to the flow of urine from the kidney to the bladder. The pain is often radiated to the other abdominal viscera, and is so intense as to require the free use of anodyne medicines.

Persistent dull pain in the hypogastric region may be owing to stagnation of urine in the bladder, or to chronic cystitis due to the presence of a tumor, or to some other cause.

Acute pain in the hypogastric region is evidence of rapid distention of the bladder by the urine, or of irritation caused by the presence of a urolith or of a foreign body, especially in the bladders of young subjects.

Pain at the extremity of the penis occurs in acute trachelo-cystitis, in prostatitis, and from the friction of a urolith against the vesical trigone, particularly during sudden movements of the sufferer.

Pain in the sciatic region, often extending to the heel, commonly the left, or along the anterior crural nerves, is suggestive of cystitis, calculus, or otherwise of prostatic obstruction and of urethral stenosis, as well as of coincident rectal irritation, these several lesions giving rise also to many other distant neuroses.

(*b*) DISORDERED URINATION merits the close attention of the diagnostician, for it covers a wide and important field of inquiry.

Urination may be (1) frequent, (2) irrepressible, (3) difficult, (4) painful, (5) involuntary, or (6) impossible. (7) The mode of urination also needs to be observed. The jet may be irregular, small, feeble, interrupted, or absent. In the last case the urine may be passed *guttatim*, may slobber involuntarily, or may cease to flow.

1. *Frequent urination* (sychnuresis) is common to nearly all affections of the urinary apparatus of man at one stage or another of their development.

It may be asked, What is to be understood by frequent urination? The answer is that no absolute rule can be laid as to what precise number of acts of urination per day should constitute undue frequency.

In the same healthy individual the frequency of urination varies according to the season of the year, the character and amount of his food and drink, and of exercise; in fact, all deviations from his habits have their influence upon the quality and quantity of urine secreted, and consequently upon the frequency of its expulsion.

There are adults who urinate ordinarily only twice or thrice daily. In these cases five or six acts of urination would constitute undue frequency. There are other adults in excellent health who urinate eight or nine times per day. In these, twelve or fifteen acts would constitute unduly frequent urination.

Certain animals in a state of health—dogs, for instance—often urinate five or six times in the course of half an hour, though they often repress the act for several hours. Some other animals habitually hold their urine eight or ten hours.

Urination is unduly frequent in cases of supersecretion (polyuria), and this frequency accords with the quantity of urine secreted. But undue frequency of urination occurs in many cases where the quantity secreted is even below the normal standard; in such circumstances the undue frequency may be owing to the irritating properties of the urine, to trachelo-cystitis, or to acute or chronic cystitis, with diminished capacity of the bladder.

Dyspeptic and neurotic subjects free from any lesion of the urinary organs urinate with undue frequency by day and by night. "Brain-workers" urinate with undue frequency, and at each act expel a considerable quantity of urine.

Nocturnal sychnuresis is worthy of special consideration. An apparently healthy elderly man may urinate once or twice during the first three hours of the night, but if after this the desire to urinate recurs two, three, or four times, there is good ground for suspecting prostatic obstruction. If, then, in the morning, immediately after urination, a catheter be introduced, from three to eight ounces will be drawn, showing the sychnuresis to be due to cystitis from stagnation of urine. Nocturnal sychnuresis, however, occurs often in calculous subjects free from prostatic obstruction.

Diurnal sychnuresis occurs alike in cases of prostatic obstruction, vesical tuberculosis, tumors, stones, and lesions of nervous centers.

2. *Irrepressible urination* (ascheturesis), often confounded with incontinence of urine, occurs in cases of trachelo-cystitis accompanied with frequent micturition. It differs from involuntary urination in one essential particular—*i. e.*, the urine escapes, not without, but contrary to, volition, in spite of a strong effort of the will to retain it. In the case of involuntary urination the will is not exercised; no effort is made to repress the urinary flow. When the bladder contracts spasmodically to expel only a small quantity of urine, as in trachelo-cystitis, whether provoked by a stone or otherwise, all effort on the part of the patient fails to restrain the flow and he soils his garments, or, when

this urgent need to urinate awakens him from sleep, he wets his bed before he can reach the urinal. Irrepressible urination occurs occasionally in elderly men with beginning prostatic obstruction. In these cases it is caused by trachelo-cystitis. The complication of polyury with cystitis is likewise a cause of irrepressible urination. It also occurs during catheterism of neurotic patients and of young men suffering from trachelo-cystitis, the urine escaping, notwithstanding the strongest wish to repress it, as soon as the instrument reaches the perineal region of the urethra.

3. *Difficult urination* (dysuresis) is a common symptom of disease of the urinary tract. Although it is ordinarily an indication of material obstacle, such as urethral stenosis, contracture of the vesical neck, prostatic obstruction, impacted calculous matter, or the presence of a foreign body, it may be owing to other causes, such as lesions of nervous centers, trachelo-cystitis, diminished or impeded vesical contraction, local congestion, etc. The act of micturition may therefore be slow, may be delayed, or difficult at the beginning, at the end, or throughout.

Slow urination occurs alike in cases of prostatic obstruction, urethral stenosis, and impeded vesical contraction from connective-tissue sclerosis, and may therefore indicate the presence of either or of all these pathic conditions, or may be owing to general neurosis, independent of any local change in the urinary apparatus. Slow micturition occurs also in case of overdistention of the healthy bladder from mere neglect to empty the viscus at the proper time—as, for example, during alcoholic intoxication.

In delayed urination, detention in the expulsion of the first drops of urine, the patient is obliged to wait one or even two minutes before the urine begins to flow. The jet, often feeble and small, is interrupted at short intervals, the patient, in the course of perhaps half an hour, making several walking excursions in his room before the bladder is emptied. This occurs during the morning toilet, and indicates, in young and middle-aged men, urethral stenosis with congestive swelling and spasm of the neck of the bladder, and in elderly men may be a symptom of beginning prostatic obstruction. In many cases, however, free from urethral, prostatic, or vesical disease, it is due solely to congestive swelling at the urethro-vesical orifice incident to several hours of recumbency and sleep, and intensified by distention of the bladder. After free exercise during the day, local congestion ceasing, this retardation of urination is no longer experienced. But when it recurs persistently in elderly men, there is every reason to suspect beginning prostatic obstruction. Delayed urination occurs often in young subjects when the bladder is much distended. Neurotic patients are very subject to this delay. Many individuals are not able for several minutes, or are never able, to urinate in the presence of another person, even if he be a physician anxious to witness the act of urination for diagnostic purposes.

Difficult urination, when constant at the beginning of the act, is commonly due to urethro-vesical contracture or to prostatic obstruction, and generally lasts throughout the act, but is not necessarily painful. Toward the end of the act of urination the difficulty is usually owing to the proximity of a urolith to the urethro-vesical orifice; in such a case there is much pain and a scalding sensation in the whole urethral canal. In case of a urethral stenosis the difficulty is proportionate not so much to the degree of the contraction as to its longitudinal extent and tortuosity.

4. *Painful urination* (algeinuresis) is another symptom of most of the affections of the urinary apparatus. It is often an early, and for some time the only, subjective symptom of grave renal disease—tuberculosis, pyonephrosis, calculous pyelitis, etc.—the patient seeking relief of the symptom and not of the disease to which it is due. Any disease which causes marked alterations in the constituents of the urine renders that urine irritating and otherwise obnoxious to the bladder and to the urethra; in other words, causes, in the bladder and urethra, more or less pain during its emission. Hyperlithuria, excessive pyuria, inordinate alkalinity of the urine, cause much burning pain in healthy urethræ during the act of urination.

5. *Involuntary urination* (aconuresis) most frequently indicates overdistention of the bladder, particularly in elderly men with prostatic obstruction; but it occurs also in cases of overdistention of the bladder, at any age, from urethral obstruction by a stenosis or by the lodgment of a urolith. Involuntary urination is likewise an indication of imperfect closure of the urethro-vesical orifice in elderly men affected with multiple tumors at the base of the prostate; these are among the cases styled true incontinence of urine. Other examples of true incontinence of urine are those due to absolute paralysis of the bladder or to malformations.

The nocturnal involuntary micturition of children is not ordinarily incontinence of urine, for the great quantity passed each time indicates distention of the bladder. The diurnal sychnuresis and involuntary urination of these little ones give evidence of polyury which is the exciting cause. In some cases there is irrepressible rather than involuntary urination. In none of these cases is there incontinence of urine, for the bladder can and does contain a considerable quantity of urine before the need comes for its expulsion.

6. *Impossible urination*—retention of urine (ischuria)—is ordinarily the outcome of a material obstacle at the urethro-vesical orifice or in the urethra. In the first case, from spasmodic or from permanent contracture, from prostatic obstruction, or from the impaction of a urolith. In the second case, from stenosis, from the impaction of a urolith or of an extraneous body, or from an injury.

7. *The manner in which they urinate* can ordinarily be described by intelligent patients, but, as a general rule, it is better that the physician trust to his own senses in order that he may properly value and interpret the character of urination in particular cases.

The propulsion of the urine is subject to several modifications, in accordance with certain local conditions of the urethra, prostate, and bladder.

Gradual diminution in size of the stream of urine during a period of months or years points to the existence of urethral stenosis.

An inordinately small stream of urine may indicate urethro-vesical contracture, urethral stenosis, or impaction of calculous matter in the urethra.

The passage of urine *guttatim* portends retention of urine from urethral stenosis.

A small, slow, feeble, perpendicular stream, interrupted by a succession of drops, is indicative of prostatic obstruction.

The slobbering of urine is a sign of overflow, and consequently of incomplete retention of urine with overdistention of the bladder.

Constant flow of urine from an undistended bladder is a sign of incontinence of urine.

Small, frequent, spasmodic jets of urine suggest acute trachelo-cystitis.

(*c*) Inquiry as to the amount of urine passed each day is of no little importance, for very considerable variations occur in primary as well as in secondary renal affections. Thus, for instance, a persistent excess above the amount of urine voided each day may indicate chronic interstitial nephritis with sclerosis (contracted kidney), which may be the outcome of modifications of arterial tension from cardiac disease, or may indicate degeneration of the kidneys from urethral and vesical disease. The increase of secretion (polyuria) varies from sixty to two hundred ounces daily, or even to a greater extent. Polyuria may be complicated with glycosuria dependent upon errors in the nutritive function or upon cerebral disease.

Diminution of secretion (oliguria) may follow polyury, or may result from acute nephritis. When it occurs during or after an attack of urinary fever it is ominous and portends anury and death.

(*d*) The physical characters and chemical properties of abnormal urine form the last part of the inquiry into the history of the disease, and comprise an examination of the significance of variations in the limpidity, turbidity, microscopical appearance, color, and chemical reactions of this urine.

Urine may be limpid when voided, it may retain its limpidity after cooling, or may become turbid in a greater or less degree. After standing a short time, limpid urine often yields a reddish deposit resembling ground Cayenne pepper, which, on microscopical examination, proves to be uric acid. When clear urine becomes turbid on cooling and is cleared by the application of heat, and, when it is again cooled, a precipitate once more occurs, it is owing to the presence of urates which may be identified by microscopical examination. Clear urine sometimes yields a scanty deposit consisting of oxalate of lime or of casts of the uriniferous tubes, free epithelium, etc., indicating in the second case renal disease.

The urine may be markedly turbid, resembling pea-soup, when passed. This is owing to the presence of a great amount of urates. A very abundant purulent sediment indicates cystitis, pyelitis, or both. When this sediment consists of creamy pus the presumption is that the pus comes from the pelvis of the kidney, but when the pus is slimy and contains phosphatic crystals, it is presumably vesical.

The color of the urine should be carefully noted for diagnostic purposes, and its significance will be fully realized by studying the accompanying table, illustrative of the tints of the urine, copied from Thudicum's excellent work on the pathology of the urine :

Table Illustrative of the Tints of Urine (Thudicum).

Color.	Substance to which the color is due.	Shortest chemical test.	Concomitant characters of urine.	Pathological indications.
Pale yellow hue to straw-yellow.	Uræmatin, smallest amount.	....	Reaction mostly neutral. Little urea and solids (except diabetes, when sugar augments solids).	Much water drunk. Anæmia, chlorosis, diabetes. Excludes febrile and acute diseases.
Lemon-yellow.	Uroxanthin.	Drop twenty to forty drops of urine into two or three drachms of fuming hydrochloric acid. Reddish violet color to blue is produced.	Deficiency of uræmatin.	Occurs in cholera and spinal disease.
Amber color.	Uræmatin.	Add to boiling urine one fourth of its bulk of hydrochloric acid. Pink or purple color produced.	Mostly normal.	Being the urine of health, this color excludes all diseases of which either pale or very high-colored urine is a symptom.
Yellowish-green.	Pigment of bile.	Let a drop of nitric acid fall in the center of a thin layer of urine on a white plate, when a transient play of colors in rings of pink, violet, and green is produced.	Very acid.	Obstruction to the passage of bile from the liver and gall-bladder into the intestines ; presence of the constituents of bile in the blood.
Greenish to grass-green.	Mixture of uroxanthin with any of the blue pigments.	Several tests of these substances.	Alkaline, decomposed ; much carbonate of ammonia.	Has occurred in cystitis and Bright's disease.
Reddish-yellow to red.	Uræmatin, large amount.	Hydrochloric acid.	Reaction acid. Large amount of solids, particularly urea.	Little liquid taken. Excess of nutritive, nitrogenous matter ; free perspiration. Fever.
Red to brown and deep brown.	Coloring principles of hæmatoxylon. chimaphila, coffee.	Coffeurine may be known from the characteristic odor.	Subject to accident.	The ingestion into the stomach of hæmatoxylon, chimaphila, senna, rhubarb, and coffee, or their extracts and infusions.
	Senna.	Mineral acids change the dark red or brownish color of this and rheine into light yellow.		
	Rhubarb.	Liquor ammoniæ converts the dark orange or brown into crimson.		
	Pigment of bile.	Nitric acid.		
Pink or rosy.	Purpurin (uroerythrin).	Is precipitated with deposits of urate of ammonia and soda, and may be combined with them artificially.	Urine always acid, making mostly a deposit of urates on cooling.	Indicates frequently the presence of serious lesions. Rest problematical.
Red to purple.	Urrhodin.	Is a product of decomposition of uroxanthin, and with blue pigments makes the urine violet.		
Blue.	Cyanurin (uroglaucin) ; indigo.	Let urine decompose, or add concentrated NO_5 or HCl. Pigment is destroyed o evaporation of urine. Concentrated SO_3. $\frac{1}{6}$ to $\frac{1}{4}$ volume, produces a test like that of Pettenkofer for bile. Indigo not affected by boiling with HCl.	Ammoniacal decomposition in the bladder.	Observed in cystitis and Bright's disease. Cyanurin sometimes discharged during apparent health. In that case the urine is of amber-color, and the pigment only appears on addition of acids.
Violet.	Mixture of the red and blue pigments, normal and abnormal.	Those of the separate substances.		
Reddish-brown to brown, porter-like.	Hæmatin.	Coagulable by heat (sometimes) ; precipitated by acids in flocculi.	....	Typhus. Breathing of arseniureted hydrogen.
Blackish-gray, black like ink.	Hæmatin, and blood becomes black in putrid urine. Tar and creasote, or carbolic acid.	Sometimes as deposit in clear ordinary urine.	....	The ingestion of carbolic acid into the blood, through the stomach or skin.

Respecting the chemical reactions of abnormal urine only little need now be said.

Urine of inordinately high acid reaction is irritating to the mucous membrane of the urinary tract.

Urine of alkaline reaction is also somewhat irritating, but strongly ammoniacal urine causes the greatest distress in the bladder and urethra.

Urine containing uric acid in excess is highly irritating, and even causes cystitis and urethritis. Oxalate of calcium in abundance of octahedral crystals produces the same effects.

Urine containing amorphous phosphate of calcium is ordinarily acid, and causes little, if any, irritation.

Alkaline, slimy urine indicates the presence of triple ammonio-magnesian phosphates.

A marked deficiency of urea in the urine is to be regarded as a serious objective symptom, while a decided excess of urea indicates great expenditure of energy or much waste of tissue from disease, or the excessive ingestion of nitrogenous food and insufficient bodily exercise.

When urine containing an abundance of sugar is retained a few hours in the bladder, fermentation soon begins, and it is not long before cystitis is developed; the urine then voided being very fœtid, turbid, slimy, purulent, phosphatic, and swarming with microzymes. At the time of its emission a considerable quantity of gas, resulting from this bacterial fermentation, escapes in large bubbles, often to the dismay of the patient, who suspects intestinal implication.

Albumin in the urine indicates renal or vesical disease, the presence of blood, or, in health, the ingestion of large quantities of albuminous food—such as eggs, etc. Dr. Carroll mentions the case of a patient whose urine was albuminous during the period of thirty years, and who died at the age of sixty.

Substances which exist in Normal Urine, but constitute Abnormities when in Excess.

- Urea.
- Uric acid.
- Urates of
  - sodium.
  - ammonium.
  - potassium.
  - calcium.
  - magnesium.
- Hippurates of
  - sodium.
  - potassium.
  - calcium.
- Lactates of
  - sodium.
  - potassium.
  - calcium.
- Chlorides of
  - sodium.
  - ammonium.
  - potassium.
- Creatin.
- Creatinin.
- Oxalate of calcium.
- Sulphates of
  - sodium.
  - potassium.
  - calcium.
- Phosphates of
  - sodium.
  - magnesium.
  - calcium.
  - ammonium.
  - magnesium.
- Ammonio-magnesian phosphates.
- Silicic acid.
- Margarin, olein, and other fats.
- Urochrome.
- Vesical mucus.

Substances which do not exist in Normal Urine, and the Presence of which constitutes Abnormities.

- Sugar.
- Calcium carbonate.
- Cystin.
- Pus.
- Chyle.
- Blood.
- Hæmatin.
- Hæmoglobin.
- Albumin.
- Bile.
- Leucine.
- Tyrosine.
- Hypoxanthin.
- Purpurin.
- Spermatozoa.
- Casts of uriniferous tubes.
- Cancer cells.
- Entozoa.
- Tubercle bacilli and other micro-organisms.
- Phenic acid.
- Iodine.
- Arsenic.
- Antimony.
- Lead.
- Copper and other poisons.

Diagnosis, the discrimination of diseases and the discovery of their character and seat, is effected (1) by analyzing their symptoms, (2) by physical exploration, (3) by recourse to chemical and microscopical examination of excretions or portions of tissue, and (4) by a synthetic mental process, summarizing the different kinds of information obtained and deducing the sign or indication of the presence of a particular disease.

It often happens that the diagnosis of a disease of the urinary apparatus is extremely difficult owing to most of its symptoms being common to several other diseases of this apparatus. In such a case, as some of the symptoms are not perceptible in all the diseases in question, these diseases are one after another eliminated from consideration until all but two are excluded, when may be employed with advantage the differential method of diagnosis, which consists in the close comparison and proper interpretation of the dominant symptoms, and of the results of the accessory means that may have been employed.

Accurate diagnosis is essential to rational therapeusis and to correct prognosis.

The prognosis of a disease of the urinary apparatus, the foretelling of its course and termination, requires a thorough study of its nature, a mature knowledge of its ordinary duration, a searching inquiry into the effect of previous treatment, and a careful observation of the general condition of the sufferer. This also serves to establish the indications of future treatment.

To the patient and to his near relations and friends prognosis is all-important. They desire and have the right to know if he is likely to recover; if so, when; if not, what will be the probable duration of life, what the extent of his suffering, if it can be alleviated, and, finally, if a cutting operation is indicated; if not, why it is contra-indicated.

The prognosis is unfavorable in cases of advanced renal disease complicating urethral stenosis, prostatic obstruction, and stone in and tumors of the bladder of long standing. In such cases cutting operations are clearly contra-indicated as most likely to shorten the patient's life, which judicious palliation renders endurable.

In malignant disease of any of the organs of the urinary apparatus, with contamination of the lymphatics, the prognosis is unfavorable, and cutting operations are contra-indicated. Palliative treatment should, however, not be neglected.

In advanced tuberculosis of the urinary apparatus the prognosis is unfavorable, and palliative measures only are indicated.

Close attention to prognosis tends to prevent recourse to painful and dangerous therapeutic means, or to cutting operations, which seldom, if ever, relieve suffering while they rapidly lead to a fatal issue.

The prophylaxis of several diseases of the urinary apparatus may be effected by avoidance of contagion, by abstention from excesses, by due observance of the rules of hygiene, by the use of prophylactic medicinal agents, or by early surgical interference.

The formation of calculous concretions may be prevented by timely general treatment of hyperlithuria, by frequently withdrawing stagnant alkaline urine from the bladder and cleansing it, or by the early removal of foreign bodies.

Ureteritis, ectasia of the ureters, pyonephrosis, and pyelonephritis may all be prevented, in cases of urethral stenosis and of prostatic obstruction, by early attention to the contracted urethra and to the bladder.

The complete cure of urethritis is often preventive of stenosis of the urethra.

The prompt resort to external perineal urethrotomy, followed by dilating catheterism in transverse wounds of the perineal portion of the urethra, is preventive of those traumatic stenoses which are so fatal to sufferers.

The judicious use of quinine during the surgical treatment of diseases of the urinary apparatus is often preventive of the intercurrence of rigors, and, when these have already begun, palliates them and often prevents their recurrence. The administration of minim doses of aconite tincture is of great value in the febrile reaction which so frequently occurs after operations or in diseases of the urinary organs, even in urethritis.

The general therapeusis of diseases of the urinary apparatus implies a good understanding of the principles of action, indication, and application of means of palliation and of cure, is an indispensable prerequisite to the efficient management of particular diseases of the organs of this apparatus, and is deduced from general pathology, from a practical knowledge of the effects of medicinal agents, and from a study of the results of surgical processes. Only general principles are thereby established, no fixed rules can be rational, for many circumstances arise that lead the physician to modify his treatment even of the same patient, and he has no other guides than are afforded by mature experience, quick perception, sound judgment, a cool head, and a steady hand. Too much haste to do for a patient is often productive of much harm. In certain difficult, doubtful cases, how much better it is to do nothing than to do the wrong thing, or to do the right thing at the wrong time or in a way that is almost certain to be injurious and perhaps fatal to the sufferer! In these circumstances, a little delay, sufficient to bring into play the reasoning faculties, is most wholesome and enables the physician to exercise his skill greatly to the advantage of the patient.

Among the inexperienced there is a strong tendency to overdo the right thing, the result being that the sick man, thus tormented by meddlesome medicinal and manual medication, becomes fretful, his body temperature rises, his pulse is quick and frequent, he is sleepless, and his appetite vanishes. These phenomena are not properly interpreted; a consultation is finally called, and the advice is, too much of the right thing has been done; cease all interference and let the patient get well.

A young surgeon, filled with enthusiasm, eager for glory, anxious to do his whole duty, well informed in all the modern devices, has just taken charge of his first case of narrow stricture in the phallic region of the urethra. He decides to perform internal urethrotomy and subjects his patient to the most rigid preparatory treatment. He sterilizes the urine with free doses of oil of gaultheria, which are to be continued throughout the after-treatment, administers quinine without stint as a prophylactic of urethral fever, disinfects his instruments, injects a good quantity of a four-per-cent. cocaine solution, executes the operation, successfully arrests the consequent hæmorrhage, resorts to dilating catheterism once each day, and causes the urethra to be injected every two hours night and day for a week with a 1-to-5,000 sublimate solution, adding thereto a liberal amount of boric acid and peroxide of hydrogen. At the expiration of this time he is alarmed to find his patient so ill, with loss of appetite and sleep, with fever and the accompanying fretfulness, and with an extremely sensitive and irritable urethra, that he requests a consultation. The consulting physician listens patiently to a detailed recital of the whole case, and, taking the attending surgeon to an adjoining room, says he is greatly surprised to find the man alive after being subjected to the torture of so much unnecessary medication, and advises its immediate cessation. From that moment the patient begins to improve, and is allowed to get well by being catheterized only once a week. This is no exaggeration, but a true picture of a not infrequent occurrence.

It is almost needless to say that diseases are not cured by medicines or by surgical operations. In the first case, drugs are given to remove the cause by destroying its morbific agency, whatever it may be, and in the second case an operation is performed to remove an obstruction, a growth, or a foreign substance, or to relieve a distended bladder, which may be disturbing the bodily functions; Nature effects the cure.

The general principles of treatment of diseases of the urinary apparatus relate to means by which a disease is cured or palliated and by which the individual may be placed in the most favorable condition to resist its effects; therefore quite as much attention should be bestowed upon the treatment of the patient as upon the management of his disease. Suitable hygienic precautions, a wholesome alimentation, the judicious use of stimulants, and such other analeptic measures as may be indicated, form the basis of the treatment of the patient. The disease may require medicinal as well as mechanical means. For instance, to relieve pain, to eradicate a poison, or to destroy an infective agent, drugs known by experience to possess hypnotic, neutralizing, or specific properties are indicated—as anodynes to relieve pain, sterilizing agents in urethritis, and mercury in syphilis. Operations, such as catheterism to relieve retention of urine; lithotomy or lithotrity for the removal of stone from the kidney, bladder, or urethra; dilatation, divulsion, or urethrotomy for the cure of stricture; nephrotomy to relieve pyonephrosis; nephrectomy for certain diseased kidneys; and cystotomy for the excision of vesical tumors. An accurate diagnosis, a sound judgment of the indications of special processes, and a masterly operative skill are absolutely necessary to the successful management of a particular disease.

The greatest caution should be exercised in prescribing some of the medicinal agents required in the treatment of affections of the urinary organs. Among these opium should be particularly mentioned for two among many good reasons: First, because of its known property to lessen the urinary secretion, which is sometimes a most dangerous consequence, and, second, because long sufferers from gravel, stone, and other painful affections are apt to acquire the "opium habit," beginning with small doses and gradually increasing the quantity until the habit is fixed. Valuable as is this drug, it should rarely be used and given only in case of the most urgent necessity.

Stimulating diuretics are also dangerous and should therefore be avoided. Mild diluents and diaphoretics should be employed in their stead.

A few words may not be out of place concerning certain questions asked by junior members of the profession, to wit:

1. What is the duty of the surgeon when it is difficult or not possible to determine the character and extent of an operation which may be indicated by a pathic condition the nature of which can not be ascertained until the parts are exposed to view by the knife?

2. Is the surgeon justified, immediately after an exploratory operation, to proceed to the final operation against the consent of the patient; that is to say, if the patient had refused to submit to anything more than an exploratory operation?

3. Is the surgeon justified, without the consent of the patient, to proceed to the final operation at the conclusion of the exploratory operation while the patient is under the influence of the anæsthetic agent?

These questions may be answered as follows:

1. The duty of the surgeon is to employ all the means of diagnosis at his command before proposing an exploration which involves the use of the knife, and, failing, his further duty, if there be time, is to submit the case to another surgeon for his diagnosis, opinion, and advice. If then an exploratory operation be advisable, its nature and also the character and extent of the operation likely to be indicated by the exploration should be fully explained to the patient.

2. If the patient refuse to submit to anything more than the exploratory operation, the surgeon is not justified to proceed beyond the exploratory operation.

3. Under no circumstances is the surgeon justified, without the consent of the patient, to proceed further than the exploratory operation.

What is then to be done, asks the junior surgeon, if the wound inflicted in the exploration is such as to be remediable only by the final operation, or such that the patient may die unless the final operation be at once performed?

The answer to this question is that the experienced surgeon is not likely to place himself in such a position, nor to entertain the thought of undertaking an exploration without having had a distinct understanding with the patient that he must trust to the judgment of the operator as to what the exploration may indicate, and give his full consent to the performance of the necessary operation. If the patient refuse to enter into this agreement, the surgeon is justified in declining to operate or even to continue in charge of the case.

NOTE ON
A NEW METHOD OF SKIN GRAFTING.*

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One of the most remarkable illustrations of reparative power is the property possessed by the living tissues of restoring losses of their own substance by the assimilation of other tissues placed in the breach of continuity. Skin, nerve tissue, cartilage, and bone inserted in the gaps occasioned by loss of these substances become soldered by a process of vascularization into perfect union with the surrounding parts. It is not necessary even that the new material should be homogeneous with the tissues into which it is to be incorporated. Substances of dissimilar composition, such as egg membrane, sponge, frog's skin, etc., are susceptible of being organized and transformed into a component part of the body.

No less remarkable is the inherent vitality of tissues entirely removed from the body. The separation of a piece of tissue from its vascular and nervous connections does not carry with it immediate death of the separated part. Its vitality, instead of being at once extinguished, is preserved for a considerable time. Numerous cases might be cited in which the tips of the fingers, the toes, the lips, the ear, the nose, etc., have been severed and replaced after a considerable time has elapsed, with the production of perfect union and the complete restoration of the integrity of the parts. The limitation of the vitality of skin grafts has been carefully studied, and experiments have shown that this may be preserved from thirty-six to ninety-six hours, and even one hundred and eight hours, under favorable conditions. Experiments in dental surgery have demonstrated that teeth—it may be one hundred years old—may be successfully implanted and form solid union with their new sockets.

As is well known, the transplantation of skin for the repair of injuries and the restoration of lost parts was practiced centuries ago, and attained a high degree of perfection in method and results. In these operations the preservation of a direct blood supply was deemed essential—in fact, it was accepted as a necessary condition of success that the vascular bond of union between the flap and the body should not be severed until union had taken place.

The discovery by Reverdin that bits of tissue might be entirely ablated and successfully grafted dates back but little over twenty years. This method constitutes a most valuable addition to the resources of surgery in the healing of large surfaces after injuries and operations. The opinion was for a long time held that the smaller and more superficial the bits of transplanted tissue, the more favorable the chances of success. More recent experiments have shown that this limitation of the superficial area of the graft was entirely unnecessary. By the improved method of Thiersch, epidermal grafts several centimetres in length or breadth may be successfully employed. The limitation of the depth of the graft is, in my opinion, equally fanciful. My own experiments have shown that deep grafts unite readily and perfectly, provided there be an accurate coaptation of the new material with the adjacent parts.

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* Read before the American Dermatological Association at its fifteenth annual meeting.

As dermatologists we are interested principally in the bearing of these facts upon the surgery of the skin. I propose to briefly call attention to a new method of skin grafting which has, I think, an exceedingly valuable, though somewhat restricted, range in cutaneous surgery.

The peculiarity of the method consists (1) in the depth of the graft, which includes the entire thickness of the skin and in some cases a layer of subcutaneous tissue; (2) in the method of procedure, which consists in removing a button of tissue of any required depth by means of a round cutting instrument known as the Keyes cutaneous punch, and immediately inserting it in a receptacle or bed previously made by the same instrument.

In this way there is obtained perfect coaptation of the graft with the base and margins of the surrounding tissues, thus insuring the most favorable conditions for immediate union of the parts. In fact, the absolute accuracy with which this may be done leaves nothing to be desired from a mechanical point of view.

Some eighteen months ago I was led to devise this method by the importunity of a patient who had become somewhat hypochondriacal on account of the disfigurement of an ugly scar on the side and back of the scalp, the consequence of a severe burn received in infancy, forty years previously. He had been able to conceal the scar by combing the hair of the opposite side over it, until the rapid thinning of the hair from premature alopecia rendered this dissimulation no longer possible.

I first ordered a closely fitting *toupée*, which concealed the deformity with some degree of success, but, as it was difficult to retain in position and was otherwise objectionable to the patient, he besought me to attempt an operation for its cure. The only expedient which suggested itself to me was the insertion of hair-bearing tissue in the bald patch. So far as I was able to ascertain, medical literature does not record a single instance of the successful grafting of skin capable of producing hairs. In all cases where skin with hair on the surface has been used in grafting, the hair invariably fell out and was not reproduced; there was at the same time a loss of the secretory and other functions of the skin, showing a complete destruction of the follicular structures. In an able article on Skin Grafting, in Wood's *Reference Hand-book of the Medical Sciences*, this opinion is formulated: "From what we know of the growth of the skin, there can be no expectation of reproducing hair or other adnexa."

A successful issue in this case was rendered improbable by the character of the soil—an old cicatrix of forty years' standing, consisting of hard, dense, fibrous tissue, with a scant vascular supply.

These difficulties were explained to the patient, as well as the improbability of success, but he insisted on the experiment being tried, assuming the entire responsibility of a probable failure.

In this case I first took a number of grafts from the opposite side of the patient's scalp and implanted them in the scar tissue. To my gratification, I found that union promptly occurred. I then waited several weeks in order to ascertain whether these ingrafted portions would produce a growth of hair, and found that the grafts undoubtedly grew hairs.

The practicability of the idea having been thus satisfactorily demonstrated, I next removed larger and deeper grafts from the scalp of another individual, who, for a sufficient pecuniary consideration, was prevailed upon to supply the material. These all took perfectly, and, after the lapse of several months, there was sufficient evidence of the growth of hair in a number of the grafts to induce the patient to ask a continuance of the treatment.

A few words as to the details of the operative procedure may be appropriate here. The hair over the limited areas from which the grafts are to be taken is cut short, and these surfaces, as well as that in which they are to be implanted, are thoroughly scrubbed with soap and hot water, and afterward washed with a sublimate solution. The operation is conducted in every detail antiseptically. The first step is to prepare a bed for the reception of the grafts. With a slight rotatory motion the punch may be made to penetrate to the desired depth, and the included button of tissue is grasped in the center with a mouse-toothed forceps, lifted up, and separated from its underlying attachments with a sharp bistoury or scissors curved upon the flat. There is but slight bleeding, which soon ceases under pressure with absorbent cotton; it is better to wait a few minutes until this subsides. A similar procedure is followed in the case of the graft to be implanted. As it is necessary to include all the follicular structures of the scalp, which penetrate deeply in the occipital region, each button was fully a quarter of an inch or more in thickness. This is immediately inserted in the receptacle already prepared, care being taken that the axis of the hairs are properly directed. The graft is fixed accurately in position and slight pressure maintained with a smooth spatula for a few minutes. After the desired number of grafts are inserted, each is retained in position by means of a thin covering of rubber tissue, the edges of which are moistened with chloroform. This substance, being transparent, permits a satisfactory inspection of the condition of the parts beneath; over this is placed a layer of borated cotton. A bandage completes the dressing. The holes from which the grafts have been taken are filled with iodoform and covered with adhesive plaster. They heal promptly, and become almost entirely obliterated by cicatricial contraction.

At the first inspection of the grafts twenty-four hours later, they are usually found to be firmly agglutinated, as may be determined by pressing on them with the point of a probe. Sometimes a little serum exudes from the sides, which may be absorbed by a cotton pledget, lifting up one edge of the rubber tissue for that purpose. For two or three days they may be dusted with iodoform. In no instance have I detected any purulent exudation. Ordinarily, within a few days the grafts are firmly united, and can not be detached without using force. They present a reddish hue for some time, which gradually fades out, and after several weeks the line of demarkation is scarcely seen.

The operation may be rendered absolutely painless by injecting a few drops of a cocaine solution. This does not interfere with the vitality of the graft. The only inconvenience I have found is a slight tumefaction of the part, which interferes with perfectly accurate coaptation. This may be obviated by the cataphoretic introduction of cocaine or by general anæsthesia.

In the last operation upon this patient the person furnishing the grafts insisted upon being etherized, and, in order to get through with him as soon as possible, I removed six grafts in succession, and, instead of immediately inserting each one as it was removed, I placed them in a solution of salt and tepid water for several minutes. This delay did not affect the result, as they all united promptly and perfectly. I learn from a letter received from the patient a few days ago (September 17th) that the hairs fell out from this last series of grafts and have not been reproduced. He further says: "There are some hairs growing in the former grafts. No doubt about that. I will say I would very gladly go on with the operation if I could be assured of success in the end." No further operative measures have been attempted owing to the impossibility of securing suitable material, as the patient's hair is difficult to match in tint and texture. Another serious difficulty was encountered in obtaining a sufficiently deep bed in the thinned contracted scar tissue in which to insert the grafts.

While the operation in this case has not yielded the most brilliant result, so far as a cure of the deformity is concerned, it has demonstrated the fact that it is perfectly practicable to ingraft deep sections of skin containing the follicular apparatus, preserving the integrity of their anatomical structure as well as their functions. Unfortunately, in small grafts the changes inseparable from the processes of union and cicatrization cause more or less contraction of the transplanted tissues and tend to obliterate the hair follicles, more especially in the peripheral margin of the graft. This destructive change is less manifest in the central portion, which would justify the assumption that a graft of considerable area would in all probability produce an abundant and vigorous growth of hair. The most available material for grafting an extensive surface would be the scalp of a person recently deceased.

The punch used in this case was about 35 to 40 mm. in circumference. A slightly smaller instrument was employed in preparing the receptacle, owing to the tendency of the button of tissue to contract. I have not used larger instruments, because the person furnishing the material stipulated that the resulting scars should not be readily perceptible. I am persuaded that much larger grafts would unite just as readily and perfectly. Rectangular or other shaped instruments might be used if desired.

The demonstration of the practicability of successfully grafting deep sections of the skin with the complete conservation of the integrity of the follicular structures has, on account of the necessary limitations of its employment, a curious rather than a practical interest. If this were its only, or indeed its chief, value, I should not have trespassed upon the valuable time of this association by describing it in detail. The method has, in my opinion, a much more valuable application. I believe that it constitutes an ideal treatment for circumscribed malignant and papillary growths occurring upon the face, where cosmetic considerations play an important *rôle* in determining the choice of an operation. Small epitheliomata, lupus nodules, moles, warts, and other facial blemishes may be removed and pieces of smooth, healthy skin substituted with the absolute certainty, if the operation is carefully done, of securing immediate union without the puckered, disfiguring scars which follow cutting and cautery operations. In one case where I removed a small epithelioma above the right superciliary ridge and replaced it with tissue from the patient's arm, the operation was entirely successful. After the lapse of several months there has been no recurrence of the disease. The line of union is scarcely traceable, and it would be difficult to identify the new tissue. (This patient was exhibited.)

The operation is more especially indicated in epitheliomata of recent development and limited area when the cancerous infiltration has not invaded the surrounding tissues. Even when the disease is more extensive, the epitheliomatous nodules around the edge may be punched out one by one and sound tissue substituted. I believe that the advance of the disease may be often checked in this way, as the healthy tissue from another surface does not so readily undergo degenerative changes. Healthy skin may be readily grafted on cancerous tissues. As a matter of experiment, I have inserted a number of grafts in the infiltrated edge of an inoperable cancer. The inner segment of the graft rested upon diseased tissue, while the outer segment was imbedded in apparently healthy tissue; the grafts united perfectly, and, in the further extension of the morbid process, the ingrafted tissues resisted the encroachment of the disease much longer than the other portions.

The method also finds a special application in cases where, after complete cicatrization and apparent cure of an epithelioma by operation, there is a redevelopment of the disease at one or more points in the cicatrix. If these diseased spots are replaced by healthy tissue, the chances of complete cure are materially strengthened.

I have not yet found a suitable case of lupus vulgaris in which to try this method, but I should think that in cases where the disease is circumscribed the lupus nodules might be punched out and healthy tissue inserted, leaving much less disfigurement than results from their destruction by curette or cautery.

Also warts and moles on the face and exposed parts which, besides their disfigurement, are prone to take on malignant degeneration, especially in persons of advanced age, may be removed and smooth, healthy skin be substituted without leaving the unsightly scars which would follow their removal by excision or caustics.

The range of application of this method with certain modifications might be still further extended. I believe that in the case of extensive epitheliomas or lupus, which have been removed by excision, instead of allowing the wound to heal by granulation with consequent cicatricial contraction, a much better result would be obtained by covering it with healthy skin, carefully cut to secure accurate coaptation. Such tissue would be less apt to become the seat of recurrent disease than the connective tissue formed by granulations.

While union takes place more promptly and perfectly where the grafts accurately fit into the place of the displaced tissue, and corresponding anatomical layers are brought in the same plane of apposition, yet the skin may be successfully grafted over muscles, fascia, cartilage, or bone. In a recent case in which a cancerous eyeball had been removed, and the disease had recurred in the orbit, involving the antrum of Highmore, rendering it inoperable, I inserted a graft at the inner canthus of the eye and two or three along the inferior margin of the orbit. The punch in each instance penetrated to the bony surface, but the buttons of implanted skin readily united. The graft at the inner canthus still remains, while the others were finally disintegrated and swept away by the cancerous process.

In closing, I may call attention to one point to which reference has already been made. The injection of cocaine, I have said, is apt to cause a slight swelling of the graft which interferes with accurate coaptation. To obviate this inconvenience, I have in a number of instances resorted to the cataphoretic introduction of cocaine. This was done by placing discs, made of one or two thicknesses of blotting paper saturated with a ten-per-cent. solution of cocaine, over the platinum surface of an electrode specially designed for this purpose by Dr. Peterson, of New York. With a current of five to fifteen milliampères, complete insensibility is secured within a few minutes. This action is materially hastened by puncturing the surface at one or two places with the point of a needle, which causes more rapid penetration of the solution.

66 WEST FORTIETH STREET.

THE TREATMENT OF HYPERTROPHIED TURBINATED BONES BY FLAP OPERATION.

BY FRED WHITING, M. D.,
ASSISTANT SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

THE great variety of operations practiced for the relief of hypertrophy of the turbinated bones furnishes eloquent testimony of the inefficiency of any one procedure for the accomplishment of the desired result.

Each has its coterie of followers who descant upon the advantages of the method they practice, and are unwilling or unable to recognize as beneficial any treatment other than that which they themselves pursue; hence the advocacy of any new operation must be supported by very substantial evidence of its value, or, in the absence of such indorsement, fail entirely of adoption, for it is extremely difficult to convince practitioners that their results are not already of the best and their modes of procedure the simplest.

The reason that no one operation is sufficiently superior to every other to cause its general adoption is found in the fact that the faults of one pertain nearly alike to all, and any device which eliminated the objectional features would at once supersede all others.

The surgery of the nose is, as a rule, attended with but slight febrile reaction, owing to the facts that the drainage is free in all directions and that the wounds are open and granulating, admitting of no retained secretions; this toleration has given ground to the idea that almost any step may be taken with impunity in this region. Such is not, however, the case as regards operation upon the middle turbinated bones, for the nearer one approaches to the cribriform plate the more decided is the reaction apt to be, a considerable elevation in temperature appearing now and again, attended with marked depression, but followed by rapid improvement in the general health of the patient attendant upon proper opening of the nasal passages.

The question as to the amount of relief afforded by operation in cases of catarrhal thickening of bone and mucous membrane is by no means determined as yet, except in those cases in which there is nearly complete stoppage of the air channels; in such the relief incident to free passage of air into the naso-pharynx and consequent ability to clear the nose of annoying secretions is so great as to minimize the appreciation of any symptoms resulting from the contraction of extensive cicatrices; in those cases, however, in which there was simple hypertrophy without obstruction and the galvano-cautery and other scar-producing agents have been used, the resulting cicatricial contraction has often been more irritating than the original lesion, and it is in just such a class of cases that a fine discrimination is most advantageous to the patient.

The history of nasal surgery presents a wide diversity of professional opinions regarding the wisest procedures to be adopted in the cases under discussion; the treatment has been rigorous or mild according as the popular idea of the day was radical or conservative, the extremes of treatment in either direction being very pronounced; from evulsion of the entire bone to applications of silver nitrate in spray is a tremendous territory to span, and yet men of the best reputation and ability have differed even so far in their ideas of treatment.

Simultaneously with the earliest employment of the galvano-cautery for the destruction of necrotic tissue in atrophic rhinitis there was aroused a furor for destroying or removing every mucous surface in the nose presenting an irregularity beneath it. Briefly reviewing the means devised for the accomplishment of this feat, we find human ingenuity to have been taxed to produce an extended variety of instruments and operations which, however curative in their agency, have all sacrificed large areas of mucous membrane, to which task has been devoted an ardor worthy of better things.

With the introduction of the cautery into nasal surgery began an era of burning, in which all the surface of the nose within reach of a cautery point—and these last were long—was grilled over, with resulting adhesions in many and broad bands of scar tissue in all cases, until several published reports of amblyopia (Schmidt-Rimpler *et al.*) from this cause called a halt in the process of wholesale broiling, and other means were sought the results of which should be less certainly disastrous. The greatest abuse of this instrument is at the hands of those who, without previous experience, do not hesitate to "touch up" the nose.

The employment of the saw has been justly popular, for, while its use is attended with hæmorrhage, the amount is small and easily controlled; the instrument is operated with ease in the inferior meatus and has proved invaluable for the removal of hypertrophies and deviations of the sæptum; in the middle meatus, however, there is scant space for its manipulation, and enlargements of the turbinated are with difficulty accessible; the saw may therefore be disregarded in the consideration of instruments for use in this region.

The snare, while it has proved very serviceable for the removal of polypi, adenoid growths, and erectile-tissue tumors, is of but very limited utility in treating hypertrophies of the nose, owing to the difficulty of applying it and the resistance of the tissues where any bone is involved.

The removal of the entire bone (evulsion) has been practiced with the intention of making an opening as large as possible in the nose; such a procedure is attended with a very considerable traumatism, a large part of the integral structure of the nose being destroyed and the support of the bony framework impaired; such an operation seems based upon the notion that the mucous membrane of the nose is a substance quite superfluous, and its wholesale destruction a rather laudable enterprise. So prevalent has this idea become that all regard for its preservation has disappeared, and it is cut out, cauterized, and sawed off with an unconventional freedom calculated to excite wonder that any perception of smell remains, and it is not possible but that the acuteness of this function must, under such treatment, suffer decided impairment.

Scissors, gouges, and similar devices, chromic and glacial acetic acids, etc., have had their day and a fair trial; to each and every one pertains the same objection—extensive destruction of essential structures in the nose.

In all the operations thus far devised there have been, among many, two chief objections: the great and unnecessary destruction of mucous membrane, and the consequent formation of scar tissue, continued contraction of which causes irritation little if at all less annoying than the original difficulty. It seems truly surprising that such slight attention should be given to preserving the integrity of this delicate tissue. The utmost care is exercised in the treatment of the eye against the formation of scars in the conjunctiva, for they are a well-recognized menace to the function of sight; but to the preservation of a sense, perhaps less useful but not one whit less delicate, and in the enjoyment of which there is exquisite pleasure, not the slightest regard is paid.

The means of accomplishing the desired effect without the production of extensive cicatrices has not hitherto been at hand; but with the introduction of the electric trephine a method is presented which should commend itself to the profession; it is a comparatively simple flap operation. Such an operation I have now practiced in a considerable number of cases, the results of which have thus far justified my expectations, the treatment having been satisfactory and efficacious.

In hypertrophic obstructions of the turbinated bones, the middle more frequently than the inferior turbinated is the affected part. This bone, when the thickening is material, projects downward into the middle meatus, as well as inward toward the sæptum, leaving little if any space for the passage of air and secretions. In my experience, the removal of the entire bone has never appeared advisable, but the grooving of it on the lower side, leaving the mucous covering intact and folding this like a scroll around the remaining portion of the bone, has afforded ample space.

The operation as performed with the electric trephine upon the middle turbinated bone is comparatively simple, although requiring considerable care in its performance in order to avoid wounding adjacent structures.

The mucous membrane being anæsthetized with cocaine, the astringent properties of which produce a temporary contraction of surrounding tissues which adds materially to the space available for manipulation, the trephine is introduced and applied to that portion of the bone lying most prominent anteriorly in such a manner as to leave the mucous membrane overlying the inner aspect of the bone and in contact with the sæptum intact (Fig. 1, dotted line). The trephine, moved by storage cells, is now carried through the lower edge of the bone backward and downward toward its posterior extremity, removing the most dependent point of mucous membrane and with it a thin shell of bone (the first cutting makes simply a groove completed in Fig. 2). This manœuvre is repeated until the bone has been cut away from below upward to a point a little above its broadest portion, or that part which impinged most closely against the sæptum. There now remains but a part of the original bone, attached to which is the mucous membrane formerly covering the whole bone minus the small amount cut away in the groove; this hangs down into the middle meatus, and when the bleeding, which is usually inconsiderable, stops, can be easily folded about the cut surface of the bone (Fig. 3), making an ample flap and admitting of healing by first intention.

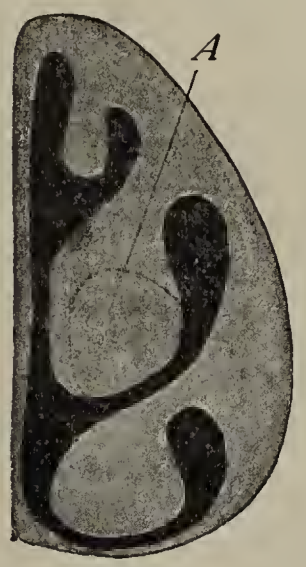

Fig. 1.

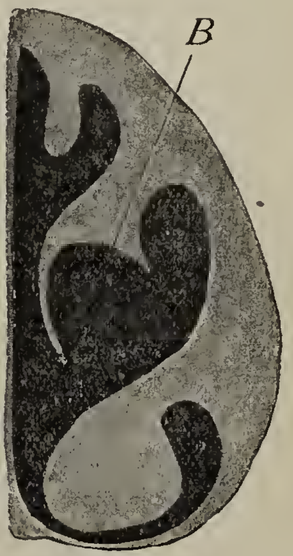

Fig. 2.

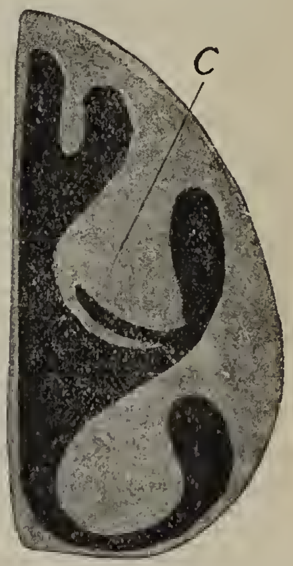

Fig. 3.

The flap is usually easily held in place by a small plug of cotton, well smeared with vaseline, introduced into the anterior naris. This causes but slight obstruction to respiration, and is easily removed on the following day without displacing the flap, if the cotton has been sufficiently anointed.

The nose should be cleansed each day with sulphocarbolate of sodium or any simple detergent lotion, and treated afterward with borovaseline. This treatment, continued for a few days, results in speedy and satisfactory healing. It may be advisable to mention that in the performance of the operation there are several complications any one of which may arise and all of which are insignificant. It often happens that a thin shell of bone clings to the flap and is applied with it to the stump; it offers no interference whatever to union, and should occasion no concern.

In attempting to keep the trephine close to the surface of the bone, the flap may not infrequently be button-holed; the general result is not influenced by this accident; there is never any sloughing.

When, as occasionally happens, the sæptum deviates posteriorly very far toward the affected side, it may be slightly wounded by the trephine, which has passed entirely through the bone. This has never as yet in my cases given rise to any trouble, the two structures being so situated that union between them is easily avoided.

The advantages alleged for the operation are:

That the minimum amount of traumatism is inflicted upon the nose; very slight in comparison with that of other operative measures.

That, in consequence of the use of a flap, union by first intention is obtained and the formation of dense masses of scar tissue avoided.

That by this method there is complete preservation of that most essential structure of the nose—the mucous membrane.

A REPORT OF THREE CASES OF FOREIGN BODIES IN THE ALIMENTARY CANAL.*

By HENRY M. SILVER, M. D.

CASE I.—One afternoon, while a little boy three years old was lying on his back on a lounge playing smoking with a large shawl pin in his mouth, his mother, who was sitting with her back to the boy, heard a choking sound and immediately turned around and asked him what he had done with grandma's shawl pin. Without sign of fear, he promptly answered: "Me eat it up."

The mother, very much excited, immediately examined the child's throat. Not finding any pin, she brought him in great haste to my office. I carefully examined the boy's throat and could feel nothing.

Thinking that he had not swallowed the pin, I told the mother not to worry; but, in order to satisfy her, I told her to take the child home and give him nothing but potatoes to eat for two days, to examine the passages, and report progress. At the end of two days the mother reported that nothing had passed, and that the boy would eat potatoes no longer. A general diet was ordered with as much potato as possible. Two days after, or four days after the pin was swallowed, the father visited my office and presented me with the pin, which, he said, had just been passed, surrounded with a thick, pasty mass, the head pointing downward. The pin (Fig. 1) measures three inches in length, the diameter of the head being half an inch. The night before the pin was passed the boy complained of some pain in the right iliac fossa, and was tender on pressure over that region. The next morning this tenderness had entirely disappeared. During the time the pin was in the child's body he played about the house, running and jumping as usual, and had never felt better in his life.

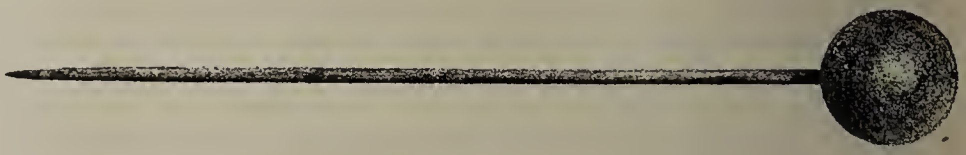

FIG. 1.

CASE II.—Becky F., aged eighteen years, was eating sponge-cake one day, when she noticed that one bolus of cake as it passed down the œsophagus into the stomach seemed to pain her more than usual. On examining her mouth for her false teeth, she found that they had disappeared. She came to my office the same evening for advice.

I ordered her to eat nothing but potatoes for two days, and to take as little to drink as possible. Also to carefully examine her passages.

In thirty-six hours the teeth were passed, surrounded by a thick, pasty mass.

During the time the teeth were in her body she had no pain.

The cut (Fig. 2) shows the shape of the plate and teeth.

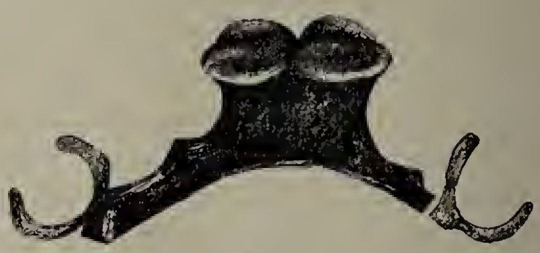

FIG. 2.

CASE III.—M. G., aged twenty-eight years, domestic, residing in one of the large manufacturing towns near New York.

Family and personal history good.

One afternoon in January, 1889, she informed her mistress that she had swallowed her teeth, and requested her to send for a physician, as she was suffering severe pain in her throat. The physician responded at once, and, on passing a probang into the œsophagus, felt the teeth in the upper third; he then attempted to push the teeth into the stomach. Failing in the first attempt, he tried again, and after a short time informed the friends that he had succeeded in pushing the teeth into the stomach. She at once began to vomit and have pain in the epigastrium above the base of the ensiform cartilage. Up to this time she had been a strong, stout, and healthy girl.

The doctor ordered her to live on soft food, although she was able to swallow all kinds of food. After remaining under this doctor's care for a few days and seeing no improvement, she consulted another physician and requested him to send her to the hospital. After her admission to the hospital she was placed on a diet of semi-solid food, and the abdomen was massaged in order to hasten the onward progress of the teeth. This treatment proving of no service, an operation was decided upon. After the œsophagus was examined and the patient properly prepared, an incision, beginning at the tip of the ensiform cartilage, was carried downward two inches and a half; after the peritoneal cavity was opened two fingers were introduced and the stomach was examined as far as possible; nothing being found, the wound was closed and healed rapidly without any disagreeable symptoms.

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* Read before the Society of the Alumni of Bellevue Hospital, June 3, 1891.

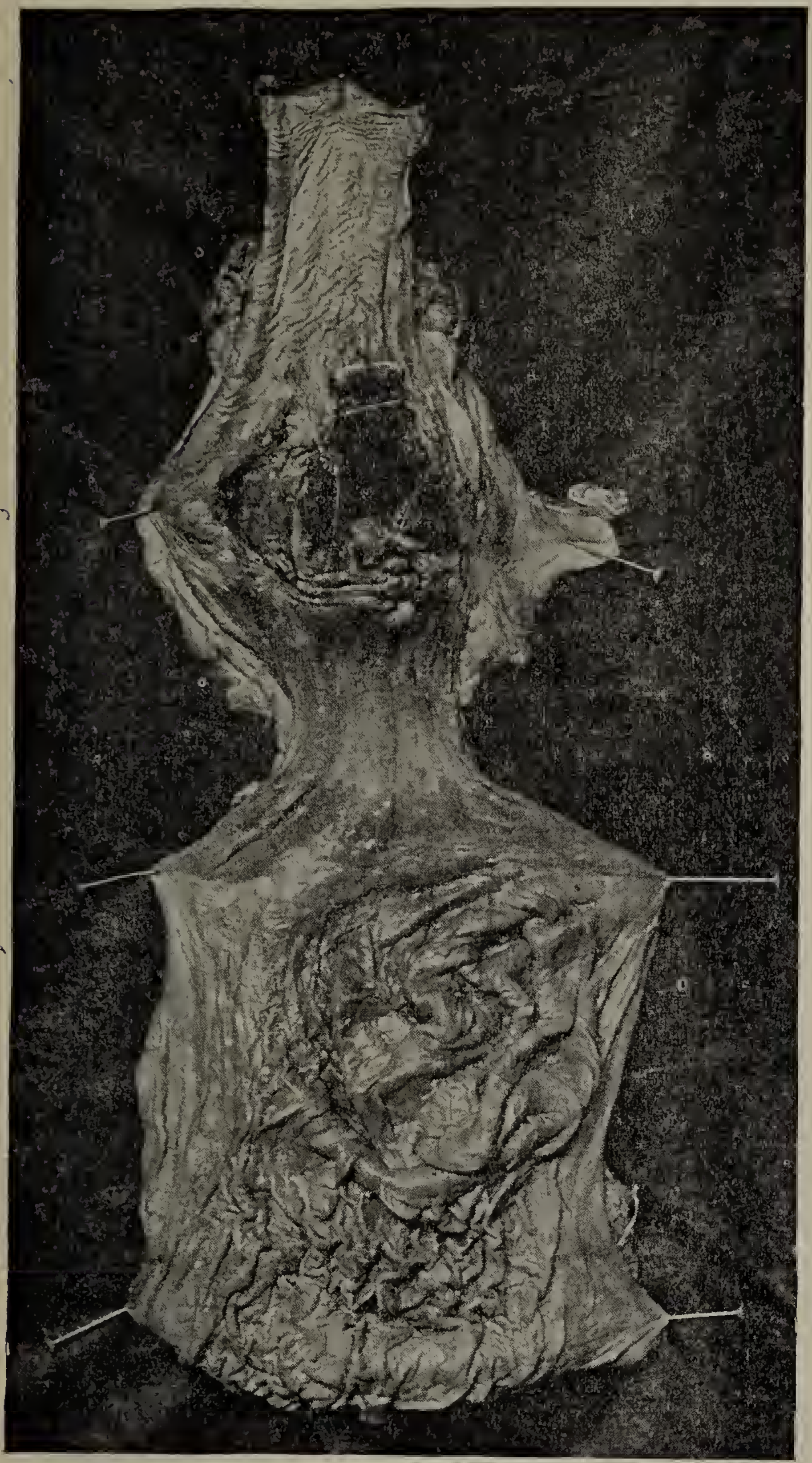

Fig. 3.

After the operation she was told that she must have passed the teeth, as they were not in the stomach.

She immediately began to improve, remaining in the hospital four weeks, then returned to work, although she still complained of some pain in the epigastrium. The hospital staff were inclined to think that she was a young woman of decided hypochondriacal tendencies. During the following summer the pain began to increase and the vomiting returned, the vomited matter containing much mucus. She was advised to go to New York for treatment. On August 22, 1889, she was admitted to one of the hospitals in New York. The next day, after all necessary preparations, an incision was made, beginning at the tip of the ensiform cartilage and carried downward five inches; the stomach was drawn forward through this opening as far as possible and carefully examined; the intestinal canal as far as could be reached was also carefully examined. As nothing was found, the wound was closed, and at the end of a week was completely healed. She was very much improved by the operation, both mentally and physically. At the same time it was thought best to wash out her stomach, as she presented symptoms of gastric catarrh. No obstruction was offered to the passage of the stomach tube.

September 25th.—After having been in the hospital a month she was discharged improved, all considering her to be a confirmed hypochondriac. She then returned to work, but was obliged to give up after working a few weeks, the old symptoms having returned. She was advised to go to another hospital in New York, where she was admitted on the 9th of November, 1889.

On the 15th of November, after the stomach was washed out, one of New York's best-known surgeons performed a pylorotomy on the patient. The interior of the stomach was examined with the finger and nothing was found. The wounds healed kindly. She remained in this hospital under general treatment until January 27, 1890, being somewhat improved. After she returned home she visited friends and suffered from a severe attack of the influenza, which left a troublesome cough behind it. This cough gradually increased in severity, the patient lost strength rapidly, and in August, 1890, she was admitted to the hospital in the town where she lived, with all the symptoms of advanced phthisis. Here she remained until the latter part of April, 1891, when she died.

By special request of the patient a post-mortem examination was made.

On opening the chest, the right lung was found to be firmly adherent to the chest wall. The lower and posterior part of the lung was adherent to the œsophagus. Several cavities of small size were found at the apex.

The left lung was slightly adherent to the chest wall. Two cavities of considerable size were found at the apex. The bronchial glands were enlarged. The œsophagus was thickened in the lower third and, on opening it, the teeth were found in close contact with the mucous membrane The teeth were pointing upward, the extremities of the base of the triangle were imbedded in the walls of the œsophagus, and a growth of new tissue had formed along the border of the plate forming the base of the triangle The curve of the plate was such that it kept the œsophagus open at this point, and the teeth were so firmly pressed against the side of the œsophagus that no obstruction was offered to the passage of food or instruments.

The measurements of the plate were as follows: Width of apex, containing teeth, half an inch; width of base, on plate, two inches; width of base, between two extremities, an inch and a quarter; length of side, from apex to base, an inch and a half.

TERPINE HYDRATE IN THE ASTHMATIC STAGE OF HAY FEVER.

By HUGO J. LOEBINGER, M. D.

Upon my arrival in this country from the European Continent some two years ago, a complex of diseases very little known in European countries was brought to my notice. I was somewhat puzzled regarding their therapy.

About the treatment of hay fever I knew but little through the medium specially of the German text-books, and still less through practice, not having met with one single case.

Hay fever, as is well known, belongs to that group of diseases still unfortunately forming the majority of those for which, up to date, no specific remedy has been found; hence one must here resort to a purely symptomatic treatment. In the first stage of the disease, where we meet with acute irritation of the mucous membranes of the eye, of the nose, and of the pharynx, such a treatment does not appear very difficult, the affection being external, and therefore the affected parts easily accessible. As specially concerns the treatment of the swellings of the nose, the galvanic treatment stands foremost.

More difficult, however, is the application of a therapy in the so-called second stage—the *asthmatic!*

The very first patients brought to my notice were already in this second stage of the disease. They presented the perfect picture of an ordinary bronchial asthma, but the red, bloated face, with watering eyes and frequent sneezing, pointed to something extraordinary. The asthmatic affection consisted principally in spasmodic, plainly audible, whistling breathing, aided by the activity of the auxiliary respiratory muscles. An examination showed a tetanic depression of the diaphragm; across the chest were heard whistling and sibilant sounds, both during inspiration, and still more during expiration.

It is unnecessary to picture here the symptoms more minutely, but I will simply remark that they dragged along for some time, contrary to those of the real bronchial asthma, which latter is periodical. For this reason alone, our sovereign remedy for the treatment of the disease—viz., narcotics, such as hypodermal injections of morphine—do not here appear practicable.

But how can this asthmatic condition, whose fundamental cause lies in the spasmodic contraction of the small and smallest bronchial tubes, be relieved? The prevailing spasmodic cough, in conjunction with sparing expectoration of a glassy mucus, gives us a distinct intimation. As the disease inclines toward improvement the cough becomes freer and the expectoration more copious.

As soon as an ordinary bronchial catarrh, with a slight fluid expectoration, sets in the symptoms of asthma disappear and the patient feels relieved. There being no accumulated secretion to be ejected, the idea here is to create an artificial secretion and thereby to produce a relaxation of the walls of the bronchial tubes. Potassium iodide, which at other times produces secretion, fails to so operate in this case. In each case of hay asthma I have administered terpine hydrate, and must here speak in advance of the results as most brilliant.

Terpine hydrate—made of turpentine oil, with the aid of alcohol and nitric acid (its chemical formula is $C_{10}H_{16}.2H_2O + H_2O$)—was first applied by Lepine in 1885 in lieu of turpentine oil in cases of bronchial affections with very good results and without any evil consequences. Concerning the latter, Germain Sée proved the utter harmlessness of the remedy in his experiments on animals; therapeutically he used this remedy in the first stages of consumption.

Terpine hydrate has long been in use in this country, and even in hay asthma, but it has been prescribed throughout in thoroughly insufficient quantities, and its effect, therefore, is scarcely perceptible. As a characteristic example of this, I will lay stress upon the fact that the well-known firm of Schieffelin & Co., of New York, sends out, among other samples of soluble pills, those of terpine hydrate in doses of two grains each. For an adult such a dosage truly appears ridiculous. It is the merit of Dr. Manasse and Dr. Lazarus, of the Jewish Hospital in Berlin, to have pointed to the correct dosage of this remedy in cases of children. In the treatment of whooping-cough Dr. Manasse gave terpine hydrate in doses of from ten to fifteen grains to children ranging from nine months to twelve years of age, and the results were quite astonishing, remaining without any after-effects regarding the conditions of the kidneys, etc.

The theoretical supposition that in cases of hay asthma after the application of a correct dose, and that is upon what the effect depends, a speedy remission of the asthmatic symptoms by means of a copious expectoration will take place, has been thoroughly proved *in praxi.* When I have administered terpine hydrate in doses of one gramme in capsules, to be taken three times daily after each meal, an improvement has almost immediately been evident. Yes, often as soon as in an hour after the first dose a copious light fluid expectoration, together with a cessation of the spasmodic phenomenon, has taken place.

This improvement was permanent when the medicine was continued with, although frequently the phenomenon of irritation in the nose and throat would remain.

I could here bring forth the history of a series of cases, which, however, appears superfluous, as the same are more or less uniform.

Before I conclude, I wish to direct attention to a diagnostic application of the remedy. In cases of phthisical patients whom I subjected to my local therapy by means of insufflation of a compound powder saturated with ethereal oils, when an insufficient or difficult expectoration was found, I administered terpine hydrate in order to obtain a more copious sputum adequate for microscopical examinations. And also for prognostic purposes—if at the conclusion of successful treatment, such as described in my former publications, a dry cough still remains—terpine hydrate can be used in this way.

Therapeutically, the use of terpine hydrate has proved negative in cases of phthisis in adults; in children, however, where any local therapy seemed inapplicable, this remedy has proved a specific—of course in the first stage of tuberculosis of the lungs. The cough ceased after a little while, and the usual catarrh of the upper lobe of the lung disappeared entirely.

If I now assert, on the strength of my personal experience, the harmlessness of the remedy in doses of from three to four grammes pro die in adults, even where previously a kidney trouble was evident, I truly believe I have spoken sufficiently in favor of the use of terpine hydrate for the purposes herein mentioned.

1055 LEXINGTON AVENUE.

A PECULIAR TWIN PREGNANCY.*

By J. A. WESSINGER, M. D.,
ANN ARBOR, MICH.

Mrs. E. K., German, aged twenty-six, was married when twenty years old. Has always been healthy. Since marriage she has been pregnant five times. One year after marriage the patient gave birth to her first child, a healthy boy still living. Eleven months after this her second confinement took place. At this time the patient gave birth to a full-term female baby, which, however, died twenty-four hours after birth. One year after the delivery of the second child she was in confinement a third time, this time giving birth to a seven months' female child that lived but a few hours after delivery. On the 6th day of January, 1891, this woman gave birth to her fourth baby, a full-term male child, which, however, died thirty-four hours after its birth. On October 10, 1891, at 3 P. M., this patient came under my personal observation for the first time, being now in confinement a fifth time, for what subsequent events proved to be a rather peculiar and interesting twin pregnancy. I found the patient in labor, which had continued since 1 P. M., labor pains occurring at intervals of ten minutes. On inquiry, I obtained the above-recorded previous history of the patient; also the fact that she had menstruated but once since her last parturition, the date of this menstruation being March 1, 1891. It became probable from this evidence that the lady was about to present us with a case of premature labor. On examination, the first thing to attract my attention was the unusual size of the abdomen, which she informed me had also attracted the attention of her associates as early as the end of the third month of her pregnancy. Palpation failed to outline the position of the uterine contents. On auscultation, I was unable ot detect the fœtal heart sounds. Digital examination found the os uteri dilated as large as a dollar coin, high up, and the membranes protruding. At 4 P. M. the membranes ruptured spontaneously, and the amniotic discharge was something enormous. Without an accurate measure, I estimated the quantity of liquor amnii as twice that of an ordinary labor. I was still unable to diagnosticate the presentation. With the amniotic discharge uterine contraction ceased, which was resumed again at 6 P. M., the descent of the fœtal head became marked, and the patient gave birth to a *normal*, although premature and dead, girl baby at 6.45 P. M. At 7.05 P. M. she gave birth to a second child that proved to be a rather interesting, peculiar, and perhaps in some respects unique monstrosity, well illustrated in the accompanying cut (Fig. 1). The children both presented by the vertex and were both female.

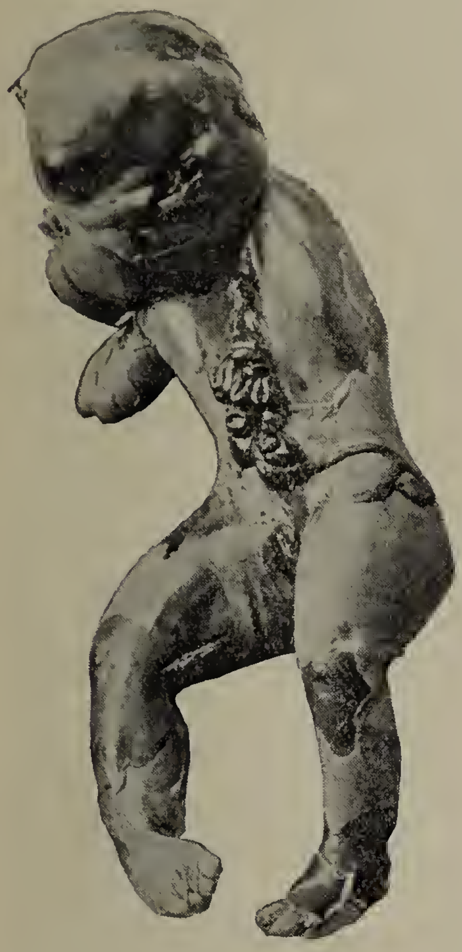

Fig. 1.

The following points of interest in this case are worthy of notice:

As Regards the Mother.—1. The large number of pregnancies occurring during the comparatively short time since marriage.

2. Death of all the children at or soon after birth, save the first-born, who is a living healthy boy.

3. The abnormally large quantity of liquor amnii present during the last pregnancy.

4. Absence of a syphilitic history.

The Fœtal Monstrosity.—1. Comparison showed arrest of development of the monstrosity to have taken place much earlier than in the normal fœtus. This was also shown by the macerated condition of the cuticle.

2. Entire absence of the left arm.

3. Evidence of intra-uterine amputation of the right arm.

4. The presence of but one eye.

5. The presence of but three toes of the left foot and four of the right foot, together with the well-marked talipes.

6. Patulence of the ventral opening with protrusion of intestines, the presence of hare-lip and cleft palate, and the abnormal size of the fœtal head.

The Placenta.—1. Its normal size and appearance on inspection.

2. The shortness of both cords, that attached to the normal fœtus measuring twelve inches in length, that passing to the monstrosity being eight inches in length.

3. The prominence of direct vascular communication between the two cords.

4. Extreme smallness of the cord supplying the monstrosity.

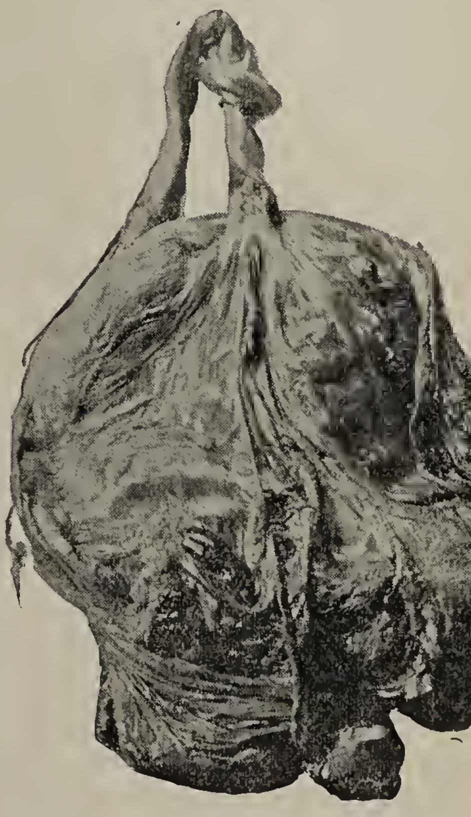

Fig. 2.

The fœtal surface of the placenta is shown in Fig. 2; also the attachment of the two cords, the normal one above, the other below.

The specimen was exhibited to the medical class of the University of Michigan by Professor James N. Martin, and is preserved in the medical museum of that institution.

67 East Huron Street.

The Death of Dr. Levi Ives, of New Haven, took place on November 30th. He was a son of the far-famed professor of medicine in Yale Medical Institution, Dr. Eli Ives, and a graduate of that school in the class of 1838. He was associated with his father in practice, but did not become a medical teacher. For half a century he was one of the best known of the medical faculty of Connecticut. He was seventy-five years old.

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* Read before the Washtenaw, Mich., County Medical Society.

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Frank P. Foster, M. D.

NEW YORK, SATURDAY, DECEMBER 12, 1891.

JAMES THACHER, OF PLYMOUTH
(1754–1844).

The choice of a biographical subject for an anniversary medical address has frequently resulted most happily. In fact, in competent and filial hands such a subject may be made exceptionally instructive and helpful, while at the same time deserved attention is paid to some otherwise neglected name—an attention which by Thaer has been compared to that last service of affection that among the ancient Romans was rendered to the deceased—namely, "driving away the flies from the face and hands." The last volume of the Massachusetts Medical Society's *Communications* contains the annual discourse for 1891, by Dr. James B. Brewster, of Plymouth, in which an old Revolutionary worthy is commemorated, Dr. James Thacher of that same historic town.

The battle of Bunker Hill had just been fought when Thacher reached his twenty-first year, and his five years ot medical apprenticeship had at the same time expired. He at once applied for examination as surgeon's mate and received an appointment to the hospital at Cambridge. Regarding this examination, it may be said that it was not a mere formal matter, since only ten out of sixteen candidates were accepted, and the topics covered by the examiners were anatomy, physiology, surgery, and medicine. Thacher served from 1775 to 1783, closing his patriotic career as regimental surgeon in the "crack" troop of Colonel Scammel, with which he was present at the surrender of Cornwallis at Yorktown. Thacher counted it among the greatest privileges and richest incidents of his life that he had taken part in that great rebuke to tyranny. Among his patients during a period of hospital service at Albany was General Benedict Arnold, who at that time was suffering from a fracture of the leg, and was an exacting kind of patient for the young surgeon. His seven long years of service in the army transformed this callow and inexperienced youth into a skillful surgeon and a man of society and of affairs, so that when he settled as a practitioner at Plymouth his fame was immediate. He became both a consultant in surgery and a medical instructor. He also engaged in literary and scientific labors. He gave some attention to the manufacture of salt and iron. His habits of life were methodical and laborious, enabling him to take up an astonishing number and variety of subjects, such as materia medica, military history, medical biography, agriculture, horticulture, demonology, and the practice of physic. His *American New Dispensatory*, published in 1810, was for a long time the standard work in the New England States. In his *Observations upon Hydrophobia* he forecast the time when that disease would be studied by means of carefully conducted experiments upon the lower animals, in some suitable institution, and wrote thus: "You may smile at my project, but, however chimerical and visionary it may appear, I would rejoice to be the Jenner of the proposed institution." His *American Modern Practice* contains an outlined code of ethics that will challenge comparison with any similar composition in the whole field of medical literature.

As he had been a man of high ideals and had spared himself in no wise in measuring his life up to those ideals, we find him standing almost alone in his day and generation, engaged in an effort to stimulate the physician in two important duties—first, the constant effort to elevate himself, especially by the study of books, and, second, the contribution of something of value to the noble calling to which he belonged. "Who can doubt that, entertaining such sentiments, he was the good physician, honored and beloved for his good works?" Until he had passed his sixth decade his life had been essentially that of a physician, but an imperfection of hearing that had been increasing year by year impelled him to relinquish active practice and to find other exercise for his still active mind. He had recourse chiefly to literary work for over twenty years—he died at ninety—and his last work was published when he was over eighty-one years of age. In the field of literature he was eminently successful, although without any early advantages and without the resources of a literary center or the society of men given to like pursuits; yet these late labors must be considered the crowning glory of a very eventful life.

Dr. Thacher's greatest work was his *Military Journal during the American Revolutionary War*—the narrative of a most intelligent and truth-loving eye-witness—a work of abiding value. Although this book has passed through several editions, few copies are now obtainable, and these are eagerly sought after by those who are adepts in Americana. As is well known, Dr. Thacher was the medical Plutarch of his day. His two volumes, published when he was seventy-two years old, entitled *The American Medical Biography*, have been a mine of wealth to many a later author. They contain life-sketches, with portraits in some instances, of nearly two hundred of his medical compatriots, charmingly written and honestly weighing the worth of each. These volumes are also quite rare and much sought after by connoisseurs.

One other trait, or contrast of traits, and we must leave this attractive personage. Dr. Thacher was, in medicine and therapeutics, among the most progressive men of his time; he was also of a deeply religious nature, going so far as to refrain to the utmost from professional work even, on Sunday—positive alike in his conservatism and his radicalism.

The work of Dr. Brewster, in this his annual discourse, has been tersely though lovingly undertaken, and its effects have been so felicitous that we commend his example—in venturing into the field of biography—to those who have an address to write and are at a loss for some subject. The worthies of medicine have in very many instances been veritable heroes.

and merit well such literary monuments as Dr. Brewster has here reared to his townsman, James Thacher, patriot, teacher, moralist, philanthropist, and author.

MINOR PARAGRAPHS.

A CASE OF SYPHILITIC HYSTERIA.

Dr. A. Fournier recently presented in Paris, says the *Gazette hebdomadaire de médecine et de chirurgie*, a patient suffering from hysteria whose origin he attributed to syphilis. The patient was a sailor, twenty-four years of age; in his infancy he had had croup and scarlatina, at fourteen years of age he had typhoid fever, and during his nineteenth year had indulged in alcoholic excess. His father had been killed in an accident; his mother was alive and well. The patient contracted syphilis in December, 1890, and two hard chancres appeared on the penis. Owing to negligence in treatment, mucous patches appeared in May, 1891. In August the patient began to feel stupid and heavy in the limbs; at the same time he began to manifest emotional symptoms and would secrete himself for hours to avoid being ridiculed. One night toward the end of August he was awakened by a desire to urinate; on arising from his bed, he fell down and was unable to move. He retained consciousness, but could not speak, though he gave vent to an incessant inarticulate cry. At the same time the left side of his face and body became paralyzed. In September an iritis of undoubtedly specific origin appeared and the patient began to be troubled with severe headaches at night. All these symptoms were improved by specific treatment. The patient was last seen in November. He then appeared stupid; the emotional symptoms remained. He complained of a constant pain over the left parietal region. The paralysis of the left arm and leg had partially disappeared, and there was a well-marked sensory hemi-anæsthesia over the left side of the body. Fournier believes that the hysteria had syphilis as its ætiological factor, as all other modes of origin were eliminated by the patient's history. There was no evidence of alcoholism, nervous shock, traumatism, or general or infectious disease recent enough to be assigned as a cause for the hysterical feature of the case. Previous to the patient's advent to the second stage of syphilis it had been impossible, Fournier added, to discover any symptom that could lead one to suspect hysteria.

LUNG SURGERY.

Dr. Tuffier recently presented before the Paris Surgical Society a patient upon whom he had performed resection of the apex of the right lung for circumscribed tuberculosis. The author had previously made a number of experiments upon animals to ascertain the practicability of operations upon the lungs, and was sufficiently convinced of their feasibility to attempt resection of the lung in the case of a man, twenty-five years of age, suffering with unquestionable tuberculous infiltration of the right apex. An incision was made in the second intercostal space at a point which corresponded with the widest expansion of the ribs, great care being taken not to injure the visceral layer of the pleura. Through this opening the limitation of induration could be distinctly mapped out by the exploring finger. A forceps especially constructed for the purpose was introduced, and the lung substance and the vessels were drawn out through the opening and fixed. A strong silk ligature was then passed around the lung five centimetres below the apex and two centimetres below the infiltrated part, which was then resected. The pedicle was fixed to the inner surface of the second rib, the external wound was closed with sutures, and the usual surgical dressings were applied. These were not removed until the sixth day, when complete union was found to have taken place. Recovery was prompt in every way. Auscultation gave distinct resonance over the whole lung, as was satisfactorily demonstrated to the meeting. The report of the case is to be found in the *Medicinisch-chirurgische Rundschau.*

CAMPHORATED SALOL.

Dr. Pégon has recently reported in the *Revue de thérapeutique* some very favorable experiences with camphorated salol in the treatment of suppurative disease of the middle ear. The formula for the preparation, devised by M. Desesquelles, is as follows: Equal parts of salol and camphor are mixed and heated until fusion is complete, without water, alcohol, or any other solvent. The mixture is then filtered and preserved in a yellow glass bottle hermetically sealed. Thus prepared, camphorated salol is a thick, colorless, unctuous liquid, soluble in ether, chloroform, or oil, but insoluble in water. Light and air decompose it rapidly. Its application is neither painful nor irritating, and it seems to possess the property of rapidly curing a distressing and very intractable disease. It is applied upon a small pledget or tampon of cotton-wool; to this may be attached a fine thread by which the patient can remove it after twenty-four hours. The ear should previously be washed out with a weak boric-acid solution, and the washing should be repeated once or twice daily when the tampon is not in position. The applications are made once in two or three days, and, if the suppuration is not profuse, the tampons may be left *in situ* from one application to another. The time required for a cure varies from four to twenty days. Dr. Pégon has found the method to succeed where the more popular ones have failed, and says that even where it has not made a perfect cure it has always diminished the fœtor and amount of the purulent discharge.

THE HEALTH OF THE AMERICAN GIRL.

In a recent newspaper article, Dr. Louise Fiske Bryson stated that the reign of ignorance and superstition was deplored by those who ought to know better. Because the American girl learned the modern alphabet, her doom was supposed to be sealed. It was feared that man in America would shortly be without a fitting mate and life cease to be delicious. The question of any physical deterioration in the American girl was quickly settled by an appeal to trade, to dollars and cents. The venders of ready-made garments stated that small women, who had formerly found a perfect fit in styles manufactured for girls of sixteen, were now wearing fourteen-year-old sizes. Naturally these women had not decreased in height and weight, but the American girl was larger. Sense and hygiene in the home during the past twenty-five years had had marked results. The maiden of to-day was the outcome of this improved and nobler way of living. Tears might be shed for medical sins, negligences, and offenses, but not for the American girl, who was likely to hold her own for some time to come.

THE PURIFICATION OF CHLOROFORM.

In the *Province médicale* for November 21st we find an abstract, credited to the *Semaine médicale*, of an article stating that M. Raoul Pictet, of Berlin, formerly professor of chemistry in the University of Geneva, has succeeded in accomplishing the absolute purification of chloroform on a large scale by subjecting it to a very low temperature secured by the evaporation of liquid protoxide of nitrogen. Crystallization ensues, and the crystals consist of pure chloroform, the part that remains liquid containing all the toxic impurities. The crystals are separated from the liquid—how, we are not told—and to the new liquid resulting when they are withdrawn from the action of the cold one per cent. of absolute alcohol is added. The purified chloroform is said to have a feebler and more agreeable odor than that of ordinary chloroform.

RAT-TAIL SUTURES.

In the *Medical News* for December 5th Dr. E. Oliver Belt, of Washington, states that he has made extensive use in ophthalmic operations of a fine fiber derived from the rat's tail. The tail is skinned and soaked in water for several days, when, on slight manipulation, it splits into perhaps a hundred fibers, each about eight inches long. They are placed in alcohol, and about once a month, for two or three days at a time, they are soaked in a 1-to-5,000 solution of corrosive sublimate. Dr. Belt recommends these fibers in cases where a strong and fine animal suture is required. He says they are much finer than those prepared from the opossum's tail, which he had seen used by Dr. Chisolm, of Baltimore.

THE AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

It is announced in the December number of this journal that Dr. Paul F. Mundé, who has been its editor for eighteen years, retires from his office. Dr. Mundé has managed the *Journal* admirably, and we feel sure that his successor, Dr. Brooks H. Wells, will continue his judicious course.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 8, 1891:

DISEASES.	Week ending Dec. 1.		Week ending Dec. 8.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	32	6	25	12
Scarlet fever	160	34	142	20
Cerebro-spinal meningitis	1	1	2	2
Measles	65	5	85	7
Diphtheria	132	56	101	46
Small-pox	0	0	0	0
Erysipelas	2	0	0	0
Varicella	9	0	12	0
Pertussis	1	0	2	1
Mumps	0	0	0	0

The Mount Sinai Hospital Alumni Association held its first anniversary dinner at the Arena, No. 41 West Thirty-first Street, on Monday evening, the 7th inst.

The Cartwright Lectures.—The next course will be delivered, probably in February, at the Columbia College School of Medicine (the College of Physicians and Surgeons), by Henry F. Osborn, Ph. D., professor of biology in Columbia College, on the subject of Present Problems in Evolution and Heredity.

The Harvard Medical School.—Dr. Harold C. Ernst has been appointed assistant professor of bacteriology in Harvard University. This promotion places Dr. Ernst in the faculty, and is a recognition of the growing importance of the subject and of his fitness as an instructor.

The Death of Dr. Charles D. Smith is announced as having taken place at his home, in New York, on Friday, the 4th inst. Dr. Smith who was seventy-seven years old, had retired from practice several years before his death, but had kept up his interest in medical matters and was widely known and much liked by his professional brethren.

The Death of Dr. Frank Donaldson, Sr., of Baltimore, is reported as having occurred on Wednesday, the 9th inst. Dr. Donaldson was in the sixty-ninth year of his age, and for many years had been one of the best-known physicians of Baltimore.

Change of Address.—Dr. Hugo J. Loebinger, to No. 170 East Seventy-fifth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 22 to December 5, 1891:*

Maus, Louis M., Captain and Assistant Surgeon, is granted leave of absence for one month.

Ball, Robert R., Captain and Assistant Surgeon. The leave of absence granted is extended one month.

Taylor, Arthur W., Captain and Assistant Surgeon. The leave of absence for seven days granted is hereby extended twenty-three days.

Wood, Marshall W., Captain and Assistant Surgeon, is granted leave of absence for three months, with permission to apply for an extension of one month.

Hall, William R., Captain and Assistant Surgeon, is granted leave of absence for twenty days.

Shillock, Paul, First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Yates, N. D., and ordered to Fort Grant, Arizona, for duty.

Suter, William N., First Lieutenant and Assistant Surgeon, is relieved from further duty at Fort Grant, Arizona, and assigned to duty at Fort Bowie, Arizona.

Stephenson, William O., Captain and Assistant Surgeon, is relieved from duty at Columbus Barracks, Ohio, and will report in person to the commanding officer, Fort Niagara, N. Y., for duty at that post.

Taylor, Arthur W., Captain and Assistant Surgeon, having been found incapacitated for active service by an Army Retiring Board, will proceed to his home.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending December 5, 1891:*

Heyl, T. C., Surgeon. Placed on the Retired List, December 3, 1891.

Jones, W. H., Surgeon. Promoted to Medical Inspector, November 14, 1891.

Anderson, Frank, Passed Assistant Surgeon. Promoted to Surgeon, November 14, 1891.

Blackwood, N. J., Assistant Surgeon. Detached from Navy Yard, League Island, Pa., and ordered to the U. S. Steamer Miantonomoh.

Morris, Lewis, Assistant Surgeon. Ordered to the Navy Yard, League Island, Pa.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending November 28, 1891:*

Vansant, John, Surgeon. Leave of absence extended ten days. November 27, 1891.

Hamilton, J. B., Surgeon. Detailed for special duty. November 25, 1891.

Irwin, Fairfax, Surgeon. To proceed to Cape Charles Quarantine for duty. November 25, 1891.

Carter, H. R., Passed Assistant Surgeon. To proceed to Savannah, Ga., for temporary duty. November 19, 1891.

Banks, C. E., Passed Assistant Surgeon. To proceed to Boston, Mass., for special duty. November 9, 1891. To proceed to Washington, D. C., on special duty. November 24, 1891.

Kalloch, P. C., Passed Assistant Surgeon. Relieved from duty at San Francisco, Cal., and ordered to Boston, Mass. November 20, 1891.

White, J. H., Passed Assistant Surgeon. To proceed to Harris Neck, Ga., for special duty. November 17, 1891.

Carrington, P. M., Passed Assistant Surgeon. To proceed to Harris Neck, Ga., for special duty. November 19, 1891.

Williams, L. L., Passed Assistant Surgeon. Grantedl eave of absence for twenty-nine days. November 14, 1891.

Pettus, W. J., Passed Assistant Surgeon. Relieved from duty at Cape Charles Quarantine, and ordered to Buffalo, N. Y., for temporary duty. November 25, 1891.

Perry, T. B., Passed Assistant Surgeon. To rejoin station at Baltimore, Md. November 19, 1891.

Cobb, J. O., Assistant Surgeon. Granted leave of absence for twenty-one days. November 13, 1891.

Young, G. B., Assistant Surgeon. To proceed to Memphis, Tenn., for temporary duty. November 13, 1891.

Society Meetings for the Coming Week:

Monday, *December 14th:* New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); Lenox Medical and Surgical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

Tuesday, *December 15th:* New York Academy of Medicine (Section in Theory and Practice of Medicine); New York Obstetrical Society (private); New York Dermatological Society; Medical Society of the County of Kings; Ogdensburgh, N. Y., Medical Association; Baltimore Academy of Medicine.

Wednesday, *December 16th:* New York Academy of Medicine (Section in Public Health and Hygiene); Northwestern Medical and Surgical Society of New York (private); Medico-legal Society; Harlem Medical Association of the City of New York; Medical Societies of the Counties of Allegany (quarterly) and Tompkins (semi-annual—Ithaca), N. Y.; Stafford, N. H., District Medical Society (annual—Dover); New Jersey Academy of Medicine (Newark).

Thursday, *December 17th:* New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private); Addison, Vt., County Medical Society (annual).

Friday, *December 18th:* New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

Saturday, *December 19th:* Clinical Society of the New York Post-graduate Medical School and Hospital.

Answers to Correspondents:

No. 368.—1. The attending surgeons of the Woman's Hospital are Dr. T. A. Emmet, Dr. H. D. Nicoll, Dr. Clement Cleveland, Dr. B. McE. Emmet, and Dr. H. T. Hanks. Which one of them succeeded the late Dr. Hunter we do not know. 2. Strümpell or Pepper's *System.*

Letters to the Editor.

THE NURSES' TRAINING SCHOOLS OF NEW YORK.

16 East Thirtieth Street, *December 7, 1891.*

To the Editor of the New York Medical Journal:

Sir: In your issue for December 5th you publish an article by the Rev. George H. Peek entitled The Massacre of Nurses. While sympathizing with him in the loss of his child, I can but feel that smarting under such grief can not be an excuse for his intemperate language and gratuitous abuse of our training schools and the officials connected with them. My long connection with one of them and familiarity with the work of others make me feel that his statements should not go unchallenged and undenied. If he has any facts to corroborate the charges he makes, it is his duty to forward them to the proper authorities, who no doubt would investigate thoroughly, and, if they were found to exist, promptly apply a suitable remedy.

In reference to pupils entering without a knowledge of the work before them, that certainly should not be charged to the institutions. They, or their friends, one would suppose, would investigate the nature and character of the duties they were to be called upon to perform, and it is hard to imagine any one entering, or being allowed to enter, upon a life's profession without carefully doing so. That an applicant should be in good health and of suitable age is admitted by all, and I believe is insisted upon in all our schools.

Their lodging and care must necessarily differ in the different institutions, just as the lodging and care for the house staff in our hopitals differ, but that they are subjected to any avoidable exposure is not true, and to say so is a serious reflection upon the officers and managers, most of whom have far more of that "tender Christian charity and kindness" than the reverend gentleman displays in his language.

Finally, without more definite data it is impossible to arrive at a correct conclusion in regard to the causes of illness in the three cases alluded to, but, in view of the ladies' short pupilage—from six weeks to five months—it would seem that they were physically unfitted for the work.

Stuyvesant F. Morris, M. D.,
Physician to the N. Y. Hospital Training School for Nurses.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Meeting of November 3, 1891.

The President, Dr. L. Carter Gray, in the Chair.

A Few Remarks on General Paresis.—Dr. William Austin Macy read a paper with this title. A question very frequently asked of the specialist in mental diseases was concerning the chance of recovery in cases of general paresis. This brought up a subject of considerable interest, inasmuch as there had been great doubt expressed as to the cases of recovery which were noted in the various records. Patients had been admitted from time to time into different asylums whose symptoms had, more or less, indicated the existence of general paresis; but, following up their history, the symptoms were seen to gradually disappear, and in many instances the patient finally was discharged as recovered. Again, these patients had been readmitted, and, after going through the usual course of the disease, had ultimately died of general paresis. A large number of those first noted had been classed as cases of "alcoholic insanity," the name given to the particular type which the disease assumed being determined by the nature of the case according as it was characterized by excitation, depression, and so forth. So great an uncertainty had been felt by many alienists concerning the real form of mental disease in the cases just mentioned that the name "pseudo-paresis" had crept into our nomenclature as perhaps best expressing the only diagnosis the physician was willing to limit himself to. Practically, the importance of diagnosticating between the true and false cases of general paresis, if there were such, was less than it would at first appear. The treatment must necessarily be much the same, for we knew from experience that there were many patients who might be classed as pseudo-paretics when their history was imperfectly known, while there might be a remission of the symptoms sufficient to cause them to be so looked upon, and that after remaining for a longer or shorter time showing this remission of symptoms they would break down and progress rapidly after the ordinary course of general paresis. The question naturally arose as to whether, from different causes, a condition was not often brought about in which the brain was attacked by a process which, if it progressed, would be recognized as general paresis, but which, in this early stage, was amenable to treatment and capable of being cured, as far at least as causing the initial symptoms to disappear.

There were reasons for thinking that there existed many cases of general paresis where the symptoms had disappeared under treatment, and where the patients had lived for years of considerable usefulness. The fact that such close resemblance existed between symptoms in those who were called "pseudo-paretics" and those whose disease was unquestionably general paresis; that many of these pseudo-paretics lived for years under treatment in a comfortable, contented, and fairly happy condition, and then broke down as soon as they were compelled to enter the struggle for existence again; that patients in whom even the symptoms which characterized pseudo-paresis gradually disappeared until they were possibly discharged as recovered often came again under observation suffering from certain and rapidly developing symptoms of general paresis—all seemed to demonstate that mental disease might exist if not checked by treatment, and, were the patient to remain where he would be constantly subjected to exciting causes, the condition would prove to be only a stage of general paresis. Not so very long ago it had generally been believed that all cases of general paresis terminated within a period not exceeding about two years. Now we found, with longer experience and more accurate knowledge, that there were many cases in which the disease had been under observation for six, eight, and ten years, or even more. Many of these cases of long standing exhibited only such symptoms as characterized the pseudo-paretic, marked delusions appearing only at intervals, or it might be that, while showing many of the physical symptoms of general paresis, the case was characterized by dementia, which was the most prominent part of the mental trouble. It was sometimes very difficult to pronounce a satisfactory diagnosis in these chronic cases when the previous history could not be readily obtained, just as it was unsatisfactory in the so-called cases of pseudo-paresis unless they were under observation for some time; but, in taking up and examining both classes of cases, we could readily see how it was that in former years many had been diagnosticated as suffering from general paresis where, on searching the records, only a few of the physical symptoms of that disease could be found. Among such patients there must have been those who might not have been paretics. It was somewhat questionable whether the combination of symptoms which led to the diagnosis of pseudo-paresis could be accurately set down in all instances to a process which, if it progressed rapidly, would end in general paresis, or whether they were symptoms which were common to certain forms of acute mania, or melancholia with stupor, or other disease, without indicating paresis. As a rule, the symptoms referred to were usually shown in cases which, if classed under any other heading, would be considered as acute mania. It was well known that among paretics, as classified, there were those whose symptoms were primarily maniacal, melancholic, or characterized by dementia, and that nearly all these cases ended in dementia if they lasted long enough. The author would call attention to those cases which, while showing manifest symptoms of mental disorder, were somewhat difficult to classify—those to which the name pseudo-paresis was so often given. It was common to find the greater number of these patients, particularly where exciting causes operated during the later period of the disease, break down and progress to the termination with undoubted symptoms of general paresis. He would cite a case which had come under his own observation in which during the later period of the disease the accuracy of the diagnosis had been questioned. The patient was committed to the City Asylum suffering from insanity, which at the time of his admission was apparently general paresis. He had remained under treatment for about a year, and had received constant supervision and care from his physicians. The symptoms which he had exhibited on admission had gradually subsided until, with the exception of a few physical symptoms and a not very well marked enfeeblement of mind, there was little to indicate the existence of any mental disease.

This patient, through the ill-advised interference of a fellow-patient who had been discharged, was taken to court on a writ of *habeas corpus*, and, the question of his sanity being inquired into, he was discharged as perfectly sane, notwithstanding the testimony given concerning his past condition. This man had remained at large some six months, and had then been recommitted, showing very marked exaggeration of his early symptoms, and had in two months died in paretic coma.

Dr. Dana had kindly called the author's attention to the case of a woman who was admitted to the asylum for insane women on Blackwell's Island in 1886. She had at that time delusions of wealth and of her own personal grandeur and importance. She had occasional outbreaks of maniacal excitement. She was simple and childish in her answers, which were given with a hesitating and stammering speech and tremor of the tongue. For the past three years this patient had been only simple, her delusions having faded away until none could be detected. The tremor of the tongue and the hesitating speech remained. She had been a good and willing worker in the asylum until rendered incapable by loss of memory and increasing dementia. Some time ago slight convulsions had occurred. Loss of sphincter control had not as yet taken place.

Electrical Injury followed by Deltoid Paralysis and Traumatic Neuroses.—This was the title of a contribution by Dr. J. Collins. The case narrated was that of a man thirty-one years of age, who was foreman of a gang of telephone and line men. On September 23d, while standing on a telephone pole repairing a trunk wire, he had received a current from an improperly insulated electric wire. The points of contact were on the inner side of the left leg and the left side of the neck, and the man's estimate of the charge transmitted through his body was a thousand volts. The shock was followed by temporary loss of consciousness, and he then fell a distance of twenty-five feet, striking a cart, and from thence to the ground. When he was seen by the author at the hospital, his mental condition was clear, and there were no particular evidences of shock. The man recovered from the contusions and burns in due course, and he was then tested for electric reactions about the arm and shoulder, which had been the parts most injured. All reactions were found to be normal, except those of the deltoid and the teres minor. About this time the patient had begun to complain of numbness of the entire left side and some loss of vision in the left eye. There was, however, no limitation in the visual field and there were no changes in the fundus. The sense of smell on the left side was complained of as deficient, as was also the sense of taste on the left side of the tongue. The thermal and muscular senses were somewhat impaired. The patient was nervous and easily frightened, believing that something was going to happen to him. He also suffered from obstinate insomnia. Owing to the failure of all the therapeutic measures tried for the restoration of this patient, it was in sheer despair determined to try hypnotism. This was done on the assumption that the hysterical element entered largely into the train of symptoms. During the hypnotic state at the first *séance* the hysterical symptoms disappeared and the patient could hear a whisper with one ear as well as with the other. Salt placed on the left side of the tongue was quickly detected. Suggestion that he should sleep and feel better generally the next day was successful. Some months after, an inability to raise the arm was treated in the same way, and the patient, while under the hypnosis, was able to respond slowly to the instruction that he should raise his arm. The *séance* was followed by improvement, and the man was now able to undertake certain duties once more. It was probable that the injury which resulted in the train of symptoms was the traumatism received to the circumflex nerve when the patient fell on the cart. The speaker had merely given the facts in reference to the treatment for what they were worth. It should be remembered, however, that the time elapsing between the receipt of the injury and the recovery of the functions of the nerve and muscles was apparently shorter than that ordinarily given by the authorities on traumatic neuroses. Still, it must also be borne in mind that the circumflex nerve was but short and not far distant from its ganglion, and that these facts, in conjunction with the reparative powers of the body, were in all probability of the greatest importance in determining the length of time of the recovery.

Dr. E. D. Fisher said that he recollected that, some few years ago, while seeing some cases with Dr. Beaver and Dr. Ferrier, in London, this question had come up. Dr. Beaver had said that a great many cases presented themselves in which the physical symptoms were pronounced enough, but in which the mental were absent or but slightly marked. These cases were, in that observer's opinion, usually due to syphilis or to alcohol. The progress of such was very much more protracted than in ordinary paresis and the patients were subject to these so-called recoveries. Such recoveries were apt to be regarded as cures of general paresis. The speaker had heard it broadly stated that syphilis was at the basis of all these cases of which they had been speaking, and would like to ask the opinion of the author of the paper. He would also like to know at what age these patients usually came under notice.

Dr. Macy said that the average age was probably about forty, though a good many were sent to be taken care of earlier than that, and as young even as twenty-five. The duration of the disease varied a good deal and was no doubt longer in proportion to the care taken of the patient. Cases similar to those he had mentioned might run for eight years, but where the symptoms were marked and the surroundings unfavorable, from one and a half to three years was about the limit. It did not seem to him that so many cases had their origin in syphilis as was generally thought to be the case.

Dr. C. L. Dana, alluding to Dr. Collins's case, said that his impression of the patient's condition was that it was a result of the fall. He supposed that there was a possibility of such electric current as had been in use when this man was injured producing a neuritis, but he had been unable to find record of such a case. One case of poliomyelitis stated to be due to the electric current did not seem to bear out this assumption on examination of the history. There were cases due to a shock from lightning, but the tension and quantity were in such instances very different from those of the arc lamp. He had seen a number of cases in which a condition of hysterical hemi-anæsthesia was produced by currents from these arc lights. He did not approve of inducing a severe form of hypnotism except in very rare cases, but thought that there was a class of cases in which the minor forms might be employed with direct advantage. He had one case in which a condition of hysterical hemianæsthesia had resulted from a fright, the patient believing he had received the electric current. This case had been successfully treated by hypnotism and hydrotherapy, and the speaker attached a good deal of importance to the water part of the treatment.

Dr. W. R. Birdsall thought that in the case under consideration it was a point to bear in mind how very slight blows upon the shoulder were frequently the origin of atrophy of the deltoid.

AMERICAN PÆDIATRIC SOCIETY.

Third Annual Meeting, held in Washington, on Tuesday, Wednesday, Thursday, and Friday, September 22, 23, 24, and 25, 1891.

The President, Dr. T. M. Rotch, of Boston, in the Chair.

The President's Address was read by Dr. Rotch, who said that the society had originated three years ago as the American Pædiatric Society, and now it was a part of the great national society of physicians. Its mission was an important one, and had for its aim the improvement of the race of the republic. Pædiatrics had not only been neglected heretofore, but had embodied many fallacies and misleading teachings. The object of this society should be to place pædiatrics in the same eminence as the sciences of the diseases of adult life. A spirit of iconoclasm must first prevail in order to clear the atmosphere for good, honest scientific work of the future. At the present time experts in special branches were absolutely essential. The whole address contained many noble and stirring appeals to the society to accomplish good work, and to enlighten the whole profession in the special branch which this society represented. In conclusion, the speaker expressed the hope that this American society would be able to repay to the Old World what it had received from her in scientific researches.

How to prevent Complications and Sequelæ in Scarlet Fever.—In a paper on this subject Dr. J. Lewis Smith, of New York, said that, in spite of scarlet fever being at times mild and having a low death-rate, cases did occur of a malignant and severe type, and severe complications leading to a fatal termination were frequent. During the first week such complications as cervical adenitis, cellulitis, abscesses, otitis media, etc., were common. These might be rendered less frequent and severe by proper treatment, such as frequent application to the nasal, post-nasal, and faucial surfaces of non-irritating germicide remedies. Recent investigators had shown that these complications were due to streptococci resembling those of pus. The micrococci were found in abundance in the immediate vicinity of the pharynx, and hence the importance of treating the pharynx locally from the beginning of scarlet fever. He advised frequent spraying of the fauces and nares with a solution of peroxide of hydrogen—one part to four of water for the former and one part to eight of water for the latter; this was to be done every two hours; or to use corrosive sublimate—two grains to the pint of water—or some other non-irritating but efficient disinfectant. A nasal injection should always be warm. The following was a good combination:

Boric acid	ʒ ij;
Borate of sodium	ʒ ij;
Chloride of sodium	ʒ j;
Water	Oj.

A teaspoonful to be injected into each nostril hourly.

Eclampsia was always a very dangerous complication, occurring either early in the disease when the temperature was dangerously high, or in the declining stage of the disease when the cause was usually uræmia. The first was best treated with cold water in one form or another, which, when judiciously employed, was not attended with collapse. The employment of cold water was given in detail. Authors were quoted as showing the inefficacy and even danger of the administration of antipyretics. The reader condemned sodium salicylate for its tendency to produce albuminuria and nephritis. Veratrum viride was mentioned only to be condemned for its dangerous depression. Two antipyretics, however, might be used with safety and advantage. These were aconite and phenacetin. For the nervous symptoms, such as restlessness and jactitation, which might lead up to convulsions, nothing was better than bromide salts. To prevent the formation of antemortem clots, free stimulation with ammonia, musk, camphor, brandy, etc., should be employed. Scarlatinous rheumatism, whether due to a microbe or not, was of itself not dangerous, but the pericarditis and endocarditis which sometimes occurred in connection with it formed serious complications. The author was of the opinion that these complications might be prevented or rendered milder by the germicidal treatment which he had recommended. The same germicidal treatment he thought would obviate an attack of complicating nephritis, although he recognized that an attack of nephritis might be precipitated by exposure to cold.

Dr. Fruitnight, of New York, said that two clinical facts must be considered in scarlatinous nephritis: 1. That it occurred most usually in mild cases. 2. This being so, exposure to cold was common. Hence he advised that the patient be kept warm, at rest, and given a milk diet. He thought that in this way he had often prevented this complication.

The Diagnosis of Consolidation of the Lung from Effusion (Serous or Purulent).—Dr. F. Forchheimer, of Cincinnati, in a paper on this subject, said that in children subjective symptoms were unreliable; physical signs alone were of value. In both a chronic consolidation and an encysted pleurisy the patient had been ill for some time; there had been more or less fever, possibly detected only by the constant use of the thermometer; there had been more or less cough, and the general condition of the child might or might not be bad. The dyspnœa would depend largely upon mechanical local conditions, and might or might not be made of service in differentiation. Encysted pleuritic exudation of the left side, high up anteriorly, offered the greatest difficulty in distinction from phthisis. If the quantity of fluid be sufficiently great, there should be very little difficulty; if the quantity be very small, it would be quite if not altogether impossible. A pleuritic exudation would be found, in the great majority of instances, to be secondary to pneumonia, infectious diseases, or to tuberculosis. In chronic pulmonary infiltration we might find a sinking of that side, with rotation of the scapula, slight curvature of the spine, sinking in of the infraclavicular space, and comparative immobility of the part affected. In the case of a larger encysted collection of fluid there would, on the contrary, be more or less bulging, and the immobility would not be so appreciable. The most important sign of a localized collection of fluid was increased resistance upon palpation. The resistance was increased by the child's cries. This resistance, combined with the evidences of percussion, were sufficient in most instances to differentiate between consolidation and effusion. He attached no weight to a change from flatness to resonance as a result of change in posture in the child. Auscultation was only of value where the quantity of encysted fluid was great. Consolidation was attended with bronchial breathing, increase in voice sounds, and the presence of râles. The most conclusive evidence was, of course, the drawing off of fluid with a hypodermic needle, although not rarely the needle would fail to draw off fluid when fluid was really present. The diagnosis of empyema and serous accumulation usually resulted in a presumptive diagnosis unless the needle was used. The presence of pus would frequently be indicated by the thermometer, by hectic, and by chills and sweats.

Hydrothorax was easily excluded when one remembered that it was a dropsy pure and simple. In exploring with a hypodermic needle, the point selected for puncture must vary with the posture the patient had been keeping. If the patient had been forced to lie on his back, the ninth or tenth interspace in the line with the lower angle of the scapula might be selected, and there need be no fear of injuring the diaphragm.

The Diagnosis of Broncho-pneumonia (Acute and Chronic) from Tuberculosis.—Dr. William Osler, of Baltimore, read a paper on this subject. The following were suggestive points:

(*a*) The frequency of lung tuberculosis in infants. Recent observations had shown that the disease was more common than we had supposed. Of five hundred autopsies in children reported last year from the Munich Pathological Institute, in one hundred and fifty tuberculosis was present, and in over ninety-two per cent. of these the lungs were involved.

(*b*) The circumstances under which tuberculous broncho-pneumonia might occur. It might develop in a well-nourished infant with healthy antecedents. A case was mentioned showing indisputably that infection had taken place in a child, without any hereditary taint, through exposure to an atmosphere contaminated with tubercular bacilli. The prevalence of infection through the lungs had been strikingly shown in the recent paper by Northrup. The author had not seen an instance of pulmonary tuberculosis in a child in which the mediastinal glands were not involved. Broncho-pneumonia associated with the infectious diseases never of itself terminated in tuberculosis. When this event happened, it meant either a preparation of the soil by the occurrence of catarrhal processes or a lowering of the tissue resistance.

(*c*) *Clinical Types.*—An acute pneumonic form of tuberculosis in infants the reader had never seen. The anatomical condition in children was almost always either lobular or pseudolobar—that was to say, the lobe looked uniformly involved, but there were between the areas of consolidation strands of air-containing tissue. Three groups of cases might be recognized. In the first the onset was sudden and the course was acute. Physical signs showed areas of consolidation at the apices or central portions of the lungs, and numerous râles. The post-mortem showed numerous foci of broncho-pneumonia. In the second group the features were those of a severe inflammation of the lung. Death might occur after an illness of from three to six weeks. The post-mortem in a case reported had shown consolidation of the upper lobe, which had contained caseous masses, and both lungs had been stuffed with tubercles. There had been an acute tuberculous bronchitis in the smaller and larger branches. The bronchial glands had been very large, and one had contained a tuberculous abscess.

The third group embraced cases in which, following a bronchitic attack or measles or whooping-cough, the child had fever of moderate degree and loss of flesh. The onset might be insidious in this way, or, as was sometimes the case, more abrupt and stormy. There was defective resonance at the upper and middle portions of the lungs, and moist râles. The further course showed signs of softening and breaking down of the lung tissue.

(*d*) *The Diagnosis.*—In the acute cases we could often say whether the affection was simple or tuberculous in its nature. The tuberculous disease was more apt to invade the central portion. In infants under two years lobar pneumonia was extremely uncommon, while, on the other hand, tuberculous broncho-pneumonia was frequently met with. In differential diagnosis physical signs and symptoms could not be relied upon, and we had to fall back upon the personal history of the child and its parents and the antecedent illnesses. The broncho-pneumonias after measles and whooping-cough were more likely to be tuberculous than those which followed scarlet fever and diphtheria.

Dr. L. Emmett Holt, of New York, continued the discussion, taking up **The Temperature in Both Forms of Acute Pneumonia.** His observations had been drawn from a study of 214 complete cases, of which almost all had been under three years of age; 53 had been cases of lobar pneumonia, and 161 of broncho-pneumonia. His conclusions regarding lobar pneumonia were that—

1. After three years its course resembled that of adult pneumonia, terminating by a crisis in eighty per cent. of 343 collected cases.
2. The most frequent critical day was the seventh, the number on the fifth, sixth, and eighth days being nearly as many.
3. Under three years the proportion of typical cases was much smaller, a termination by crisis being seen in only about fifty per cent.
4. The temperature was oftener of a remittent type than steadily high, this being especially characteristic of the cases under two years.
5. The mortality was directly in proportion to the height of the temperature when this was over 105° F.
6. In broncho-pneumonia a critical day was rarely seen. The predominating variety was a high remittent type of fever. Steadily high temperature was not often seen excepting in cases proving rapidly fatal.
7. As in lobar pneumonia, the death-rate increased rapidly with each degree of temperature above 105°. The cases with low temperature throughout were likewise very fatal; the lowest mortality being seen in those in which the highest point reached was from 103·5° to 104·5°.
8. As to duration, the lowest mortality was seen in the cases lasting between six and fourteen days. Those lasting three days or less were all fatal from their severity. In the protracted cases the mortality increased rapidly as the duration passed three weeks.

Only cases of acute primary pneumonia were included in the statistics.

Dr. W. P. Northrup, of New York, baisng his remarks on twenty cases of primary pleurisy, would lay down the following five points in differential diagnosis:

1. Marked one-sided dullness argued pleurisy with effusion, with a tendency to fibrinous exudation.
2. Well-pronounced bronchial breathing, most marked posteriorly; always present at the apex; generally over the entire back; might in some cases be absent over the back.
3. Percussion would give a tympanitic sound at the apex and in front.
4. There need be no displacement of viscera.
5. The child might have shown sickness for only a single day when the physical signs of effusion were present.

Dr. H. Koplik, of New York, had examined many cases of purulent effusion in children ranging from six months to six years, and did not believe that encysted collections of fluid occurred frequently. In cases of presumable pneumonia, if resolution did not take place in thirteen days, he would advise aspiration to clear up the diagnosis.

Dr. A. Jacobi, of New York, thought that we were often too schematic in our distinctions between lobar and lobular pneumonia. He had seldom seen croupous pneumonia uncomplicated with lobular pneumonia and with pleurisy, and lobular pneumonia uncomplicated with croupous pneumonia. The duration of pneumonia in children did not often extend beyond six days, but cases were seen which lasted only two or three days, and others again which might extend to ten, fourteen, or fifteen days, and recovery even then be quite favorable. He could give no positive symptom distinguishing lobar from lobular pneumonia. The expectoration in children was not often seen, and even in those cases in which it was seen it might not be bloody. The attendant cerebral symptoms were often misleading and might lead to a diagnosis of meningitis. As a point in diagnosis, too much stress could not be laid upon the frequency of respiration. He had often diagnosticated pneumonia in a doubtful case, finding marked increase of the ratio of respiration. The examination of the sputum, even when it could be obtained, was not conclusive, for neither Friedländer's coccus nor Fränkel's could be considered pathognomonic. A good practical point was always to percuss the axillary spaces, for dullness might be found here when it was absent elsewhere. Bronchophony was a reliable physical sign and was brought out when the child cried, and in this way was so much more valuable a sign than bronchial breathing.

Dr. J. L Smith would ask Dr. Holt to examine his statistics very carefully in order to see if he had really met with so many cases of lobar pneumonia under three years of age. He would also ask on what grounds the diagnosis of pneumonia was made. He himself was of the opinion that lobar pneumonia was an uncommon disease under three years of age.

Dr. Holt, in reply, stated that he had made the diagnosis only when the evidence—such as sudden onset, well-defined and distinct dullness, high temperature, rapid course, and abrupt termination—were present. He stated that he had often witnessed cerebral symptoms in pneumonia when a post-mortem had showed no signs of meningitis, and again he had observed absence of cerebral symptoms when the autopsy had showed the presence of meningitis.

Dr. Osler said that the absence of cerebral symptoms in complicating meningitis was to be expected if only the cortical membrane was affected. It was only when the basic membrane was affected that symptoms obtained. In the pneumonia of adults meningitis was a common complication. Out of one hundred and five cases which he had reported, eighty-five had been attended with meningitis.

Dr. Jacobi stated that he had often met with lobar pneumonia in children under six weeks of age. After that period until the third year catarrhal pneumonia was the most frequent. Still, during that age he thought that the proportion of lobar pneumonia was one third and catarrhal pneumonia two thirds in the cases that occurred.

Dr. Adams, of Washington, from his observations and from what he had read, had come to the conclusion that the frequency of pneumonia in New York city must be due to climatic conditions. In the Washington Hospital they had only met with five cases in a number of years.

A Specimen of Congenital Heart Disease.—Dr. William Travis Howard, Jr., of Baltimore, presented a specimen. The child had been three months and six days old. On the second day after birth, during an operation, without an anæsthetic, for imperforate rectum, cyanosis had been first observed. The post-mortem had showed complete atresia of the pulmonary orifice with patency but not dilatation of the ductus arteriosus, and patency of the Eustachian valve, without imperfection of the ventricular septum. In all probability the disease had been a congenital malformation, and as such it was especially interesting in being associated with congenital imperforate rectum, as well as thickening and retraction of the aortic valves. There had been no evidence at all of antenatal or postnatal endocarditis, and this case must then be classed with the great majority of cases of pulmonary-artery atresia as due to a developmental error.

Dr. J. L. Smith had collected 150 cases of cyanosis, and the most common lesion he had found had been a total occlusion of the aorta and pulmonary artery, with patency of the foramen ovale. The ductus arteriosus in most cases had been found very much enlarged. Not rarely the cyanosis did not appear until a month or two after birth.

Further Report on Submembranous Local Treatment in Pharyngeal Diphtheria.—Dr. A. Seibert, of New York, in a paper on this subject related the results of 50 additional cases treated by submembranous injections with chlorine water. The cases had comprised 37 cases sent to him by other physicians and 30 in his own practice. The ages had varied from six months to fourteen years. The injections had been efficacious in 44 cases, in 3 there had been slight improvement, and in 3 there had been no improvement. Recovery had taken place in from one to eight days. Four patients had died. The results had been witnessed in a lower temperature, improved heart's action, and disappearance of false membrane. The chlorine water had been the officinal preparation, and had been taken from a fresh bottle each time. The fluid had been injected quite deep, so as to reach the submucous tissue. The four fatal cases had been very severe, and would have proved fatal under any form of treatment. Of the cases that had ended in recovery, not one had been followed by paralysis or nephritis.

Dr. Koplik thought that this treatment was a step in the right direction, although he could not understand how the injected fluid became diffused.

Dr. J. L. Smith considered the treatment dangerous, in that the needle would penetrate the small blood-vessels and thus create an opening for the entrance of Loefler's bacilli, which ordinarily were confined to the surface of the mucous membrane.

Dr. Northrup stated that the bacilli did not penetrate the tissues as deep as the injection was made to penetrate by Dr. Seibert, and, while he was willing to accept Dr. Seibert's favorable results, the explanation of his method must be sought in other directions.

Dr. Holt remarked that the fact must not be lost sight of that various epidemics differed much in severity. An objection which occurred to him was the difficulty of carrying out the treatment, which, in his opinion, would take three persons and an O'Dwyer gag.

The President would ask the reader of the paper what proportion of the cases had been of the tonsillar variety, for it was well known that diphtheria of the tonsils was a much less dangerous affection than diphtheria of the fauces and naso-pharynx. Some years ago he had pointed out the anatomical reason of this, which was to be found in the fact that the tonsils were very poor in lymphatics, while the fauces and naso-pharynx were richly supplied with them. In the one case absorption was slow, in the other it was rapid.

Dr. Seibert, in reply, stated that in a fair proportion of his cases the fauces and naso-pharynx had been affected. That the operation had been easily done; the mother had held the child in her lap, and some one had held the child's head. He contradicted the statement that the bacilli were confined to the surface; they must of necessity penetrate to the capillaries in order to excite inflammation. Regarding the frequency of applications, in the majority of cases he had found it necessary to make only one application. The most he had ever made was in one case, in which he had employed eight *séances*. He had employed chlorine water because experiments had shown it to be the most powerful germicide that we had, and because it was innocuous.

Dr. A. Jacobi wished to add something on the discussion on diagnosis of pneumonia in children. He stated that one of the greatest difficulties in diagnosis was caused by the mediastinal glands, which were frequently enlarged and gave a dull note on percussion. This enlargement of the glands might exist with or without disease of the lungs. The glands at the hilum of the lung also frequently became swollen, and caused an obstacle in diagnosis.

A Case of Ulcerative Catarrhal Dysentery.—Dr. W. D. Booker, of Baltimore, read a paper with this title. The patient was twenty months old and had been ill with vomiting and purging for a week before he had come under the reader's care. The child had previously been healthy, had been nursed at the breast, and given, in addition, food from the table, including cabbage, tomatoes, and other vegetables. He had been under observation for eleven days, and the number of stools had varied from two to eight daily. The stools had contained mucus and blood. The temperature had ranged from 99° to 102° until the day before death, when it had reached 104°. A post-mortem examination had been made thirty minutes after death, and the contents of the bowels had been subjected to a thorough bacteriological examination. In all parts of the bowels a great abundance of bacteria had been found, chiefly consisting of colonies of *Bacterium lactis aerogenes* and *B. coli commune*. The author had found in addition new species of bacteria in large quantity in the diseased part of the intestine. In morphology it had resembled *Bacterium lactis aerogenes*, but had been slightly smaller. Other points of interest in the case were the presence of a new species of bacteria in the mucous membrane of the colon, the distribution of bacteria in the mesenteric glands, and the presence of *Bacterium lactis aerogenes* in the stomach.

An Improved Method of performing Artificial Forcible Respiration, with Exhibition of Instruments.—Dr. J. O'Dwyer, of New York, read a paper on this subject. The method presented was a modification of that of producing artificial respiration as devised by Dr. George E. Fell, of Buffalo. This method consisted in forcing air into the lungs by means of a foot-bellows connected by rubber tubing to a set of tubes which the reader had devised (and which were exhibited). These tubes were constructed to enter the larynx *per vias naturales*. The introduction of the tubes was quite easy to one familiar with the operation of intubation. The only danger attending this method was injury to the lungs from forcing air in and not allowing sufficient time for it to escape, resulting in overdistention and rupture of the pulmonary vesicles. This was obviated by making the respirations slowly—10 to 12 in a minute. The method was of value in all forms of narcotic poisoning and might prove useful in those cases in which the inspiratory muscles were rendered temporarily useless. Another use to which the tubes might be applied was to prevent blood from entering the lower air-passages during operations in or about the mouth, while at the same time affording a free passage for the air to and from the lungs.

Dr. Northrup said that the author was less sanguine than his results warranted. He himself, at the author's request, had tried to rupture the lungs of a child (post mortem) with the bellows and tubes, but had failed, in spite of using all his physical power.

Dr. Booker asked the reader if the method might be employed in the resuscitation of the newly born.

Dr. O'Dwyer replied that it might be so used, but he did not think it would ever be necessary, for he had always succeeded in such cases by the direct method of blowing air from mouth to mouth.

On the Association of Congenital Wryneck with Marked Facial Asymmetry.—Dr. William Osler read a paper on this subject, in which the history of a case was detailed in full, showing marked asymmetry of the face, in which the evidence had been strong that the attendant wryneck was present at an early age and was probably congenital. Wilks, Bradford, Stanley Boyd, and Golding-Bird were quoted as showing the association of congenital wryneck with asymmetry of the face. A perfectly satisfactory explanation of facial asymmetry as to its relation to torticollis had not yet been offered. The author was of the opinion that the hemiatrophy and the shortened muscles were both the expression of some central lesion, but could not state where the mischief was located.

Dr. Samuel S. Adams, of Washington, exhibited an interesting case of **Pseudo-hypertrophic Paralysis in a Lad Ten Years of Age.**

Gavage in the Treatment of Persistent Vomiting in Infants.—A paper was read by Dr. Charles G. Kerley, of New York, by invitation. In washing out the stomach for vomiting, the author had observed that after the operation an ounce of warm water would be retained in the stomach, when stimulants largely diluted and foods of various kinds, given by the mouth, within an hour or two would be rejected. It had occurred to him that if water administered through a stomach tube was retained, partially digested food and diluted stimulants might be kept down if given in the same way. Although gavage had been used previously, the reader stated that it had never been employed in persistent vomiting. The method had been employed in twenty cases. The histories of eight cases were read in detail. The apparatus employed was that ordinarily used for stomach washing, with this exception: instead of the soft-rubber catheter, Pain's No. 1 adult nasal feeding-tube was used, which had the advantage of possessing only one "velvet eye," shortening the duration of the operation about one half, a decided advantage in some cases. The points given for the operation were:

1. The rapid introduction of the tube and its rapid withdrawal.
2. The posture of the child ought to be a half-reclining one.
3. The quantity of diluted stimulants or predigested food should vary from half an ounce to two ounces and a half every two or three hours.

The reader felt justified in drawing the following conclusions from his experiments:

1. In every case of persistent vomiting in infants not of cerebral origin, gavage should be tried after other measures had failed.
2. It might be resorted to under any circumstance when infants could not or would not take sufficient nourishment.
3. Its application, like stomach washing, must be limited to infancy, since in children over two years the resistance of the patient made it almost impossible of application.

Dr. Holt had seen a number of the cases treated by the reader and added his testimony to its efficacy. He could give no reasonable explanation of its working, but thought it worthy of further trial.

Dr. O'Dwyer had not had good results with forced feeding after intubation in children over eight months, for they almost invariably ejected the food. He had not used the precaution stated by the reader of squeezing the tube on its withdrawal. For some time past he had employed a certain posture in feeding and had discarded forced feeding.

Dr. Putnam, of Boston, was of the opinion that the lower end of the œsophagus was the irritable point in vomiting, and hence the value of feeding through a tube.

Dr. Koplik suggested that if the babies had been allowed to starve for six or eight hours the vomiting would have ceased.

Dr. Kerley, in reply, stated that if the babies which he treated had been allowed to go six or eight hours without nourishment they would have gone into collapse, which would have ended in death.

Scorbutus in Infants (American Cases).—Dr. Northrup read a paper on this subject. He took the description of scurvy as found in Keating's *Encyclopædia* and in Eustace Smith's book as a prototype for the two cases which he recorded as coming under his own observation, and for the seven cases which he had collected from American medical literature. A number of microscopical plates were exhibited showing the characteristic changes in the bone in one of his cases which had proved fatal. The interesting feature of the case that ended in recovery was the circumstance that the child had belonged to wealthy and healthy parents, surrounded by all the luxuries of modern civilization, and yet the affection had been evoked by malnutrition. Another point of interest in the case was swelling of one lower limb which had been diagnosticated by the attending physician as rheumatism. The reader quoted a number of eminent European authorities showing the infrequency of the disease in children. The statistics of the New York Board of Health and the replies from a number of American observers were given indicating its rarity in this country.

Dr. Holt had had a fatal case in which the autopsy had confirmed the diagnosis. His case had corresponded in all respects with that narrated by the author, excepting that hæmorrhages about the end of the femur had occurred in his case.

Dr. Booker had had a similar case reported to him by a Baltimore physician.

Dr. Fruitnight mentioned a case in his practice in which the child had had abundance of food, but had had an aversion to vegetables and starchy foods.

Dr. Putnam had seen two cases of scorbutus in children which he thought might have been evoked by exposure to arsenical fabrics.

Dr. A. Jacobi would like to know what was understood by the term scurvy. If all blood dyscrasias could be labeled scurvy, as a recent German writer had done, then the affection must be considered very common. He had found it extremely difficult to make any one symptom pathognomonic of scurvy. Bleeding from the gums could not be considered as such, for in infants without teeth there would be no bleeding from the gums, although they suffered from this affection. He would explain the rarity of the affection in the quoted statistics of New York by the fact that it was diagnosticated as something else. He himself had met with not a few cases.

Dr. Northrup would not commit himself to a definition of the disease under discussion.

Primary Nephritis in Infancy.—Dr. L. Emmett Holt reported two cases of acute primary nephritis, both terminating fatally, in infants aged, respectively, six and thirteen months. Neither child had had scarlet fever or any other infectious disease. The symptoms had developed suddenly without any assignable cause. The prominent ones had been a prolonged period of high temperature, lasting in one case twenty-one days and the other seventeen days, the fever ranging from 101° to 105°. There had been dullness, prostration, and anæmia, but no suppression of urine and no dropsy. Death had taken place from exhaustion. At the autopsy all the organs had been normal except the kidneys, which had exhibited the lesions of acute diffuse nephritis to a very marked degree. Microscopical sections from the kidneys were shown to the society.

Chronic Nephritis in Children and Young Adults.—Dr. Henry Jackson, of Boston, read a paper on this subject. The full histories of seven cases of chronic disease of the kidneys in patients varying from seven to nineteen years of age were reported. The interesting and valuable points brought out by these histories were:

1. The presence of kidney disease in the absence of symptoms pointing to an affection of the kidney.
2. The importance of examining the urine in every child presenting obscure symptoms.

3. The difficulty of tracing the pathological factors of the kidney lesion.

Scarlatinal Nephritis in Children.—Dr. J. L. Smith read an elaborate and exhaustive paper and quoted several bacteriologists to show that this form of disease was of microbic origin. Although admitting the probability of this causation, he laid emphasis on the fact that exposure to cold would often bring on an attack. He did not attempt to explain in what manner the cold acted.

Dr. A. Seibert did not believe in primary nephritis. In many so-called cases the point of entrance of the infectious material was overlooked. He had known mild cases of acute amygdalitis and varicella to be followed by acute nephritis. Chronic nephritis, he thought, was often due to several acute attacks of a mild character, which were probably overlooked.

Dr. Forohheimer regarded the scarlatinal virus, and not exposure to cold, as the cause of scarlatinal nephritis.

Dr. Putnam agreed with the last speaker.

Dr. Koplik was a strong believer in the mycotic origin of scarlatinal nephritis. He had produced exactly the same lesion artificially in the lower animals by injecting cultivations of various streptococci.

Dr. Fruitnight considered that cold was a factor in the causation of the disease.

Dr. Jaoobi was surprised to hear that primary nephritis was so rare in children, as he had met with a great number of cases. He had met with it in an infant five weeks old. Many cases of obstinate diarrhœa might find their explanation in the condition of the kidneys. He made it a point to examine the urine in all obscure cases. He expressed himself very strongly in favor of the view that exposure to cold was often the exciting cause of scarlatinal nephritis, as well as of the primary form.

The President was very emphatic in his belief in the danger of exposing a child to cold who was the subject of scarlatina. He believed as much as any one could in fresh air, but thought that we could not be too careful in discriminating between fresh air and exposure to drafts.

The Ætiology of Stomatitis Aphthosa.—In a paper on this subject Dr. F. Forohheimer said that stomatitis aphthosa possessed a distinct clinical picture, and was characterized by general and local disturbance. The aphthæ were to be looked upon as vesicles, modified by the locality in which they appeared—that was the mouth. The author was decided that the aphthæ were not of tubercular process, and he did not believe that they had any connection with derangement of the stomach. The theory adopted abroad that stomatitis aphthosa was the manifestation of the foot-and-mouth disease in cattle could not be applied to the cases occurring in this country, from the rarity of the latter disease. He drew the following conclusions:

1. Stomatitis aphthosa was a disease produced by some form of deleterious material in the circulation.

2. This material might have its origin in various processes, bacterial or otherwise.

3. This material might therefore be of various kinds.

4. This material acted upon a nerve or nerves, or upon a nerve center or nerve centers.

5. It produced an herpetic eruption, which was the aphthous process.

The discussion that followed was carried on by Dr. Koplik, Dr. Putnam, the president, Dr. Adams, and Dr. Forchheimer, and brought out the point that the term aphthæ was rather misleading and indefinite; and, as a result of the discussion, the president and Dr. Forchheimer were appointed a committee to consider the nomenclature of diseases of the mouth in children.

Perityphlitis in the Young.—Dr. J. Henry Fruitnight read a very interesting and elaborate paper on this subject. The ætiology and symptomatology were given in full. Therapeutically the cases might be divided into three classes:

1. The mild form, which was amenable to simple medical treatment, and usually ended in resolution.

2. The class which ended in suppuration and which nearly always depended upon trouble originating in the appendix, and in which a prompt and definite surgical interference was indicated.

3. The relapsing type, in which operation should be done only after the inflammatory symptoms had subsided.

He emphasized the importance of discarding or limiting the milk diet, on account of the formation of curds. Opiates should be given to relieve the pain. Locally he favored warm applications. If no improvement was observed, surgical interference should be resorted to as early as the third day. He summed up the treatment as follows:

1. In cases of a chronic or subacute perityphlitis, without a tumor or with a small tumor, the expectant plan of treatment might be followed.

2. In cases of chronic or subacute perityphlitis, with a growing tumor, with or without evidences of suppuration, extraperitoneal incision or aspiration should be done.

3. In cases of acute perityphlitis with threatening symptoms, with tumor, and hyperacute cases without appreciable tumor, exploratory incision (extraperitoneal or intraperitoneal) should be made.

Officers for the Ensuing Year.—President, Dr. William Osler, of Baltimore; vice-president, Dr. J. M. Keating, of Philadelphia; secretary, Dr. S. S. Adams, of Washington; treasurer, Dr. C. W. Townsend, of Boston; recorder, Dr. W. P. Watson, of Jersey City.

Dr. W. D. Booker, of Baltimore, was made a member of the council.

The society then adjourned to meet in Boston in May, 1892.

New Inventions, etc.

AN ASEPTIC SUTURE CASE.

By George Ryerson Fowler, M. D.,
BROOKLYN.

The accompanying cut represents a convenient form of suture carrier. It was made at my request by Kersten & Kayson, of Brooklyn. It consists essentially of, first, a tube-shaped case, A (Fig. 1), a glass reel, B, a rubber cork, D, and a metal screw cap, E. The tube-shaped case has a projecting nipple, C, with a screw cut upon the glass, upon which the metal cap E fits. The suture material is wound upon the glass reel and placed in the case, the end of the thread being brought out at C. A small rubber cork is placed at this point, the thread being brought

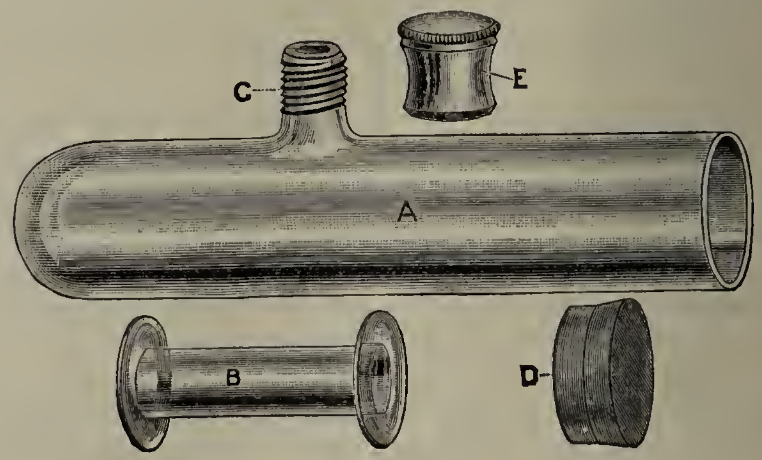

Fig. 1.

out between the cork and the glass. The screw cap has a disc of rubber in a recess in its top, which, when the former is screwed down in position together with the tightly fitting cork in the nipple, prevents leakage and infection. After placing the glass reel in the case, the latter is filled with ninety-five-per-cent. alcohol and the end securely stoppered by means of the rubber cork, D. The case, thus securely sealed, is placed in a lightning fruit jar (Putnam's), covered also with ninety-five-per-cent. alcohol, and hermetically sealed. This is now placed in a water bath and heated to about 200° F. If the water in the water bath boils, but slowly, the proper temperature will have been attained. As a precautionary measure, it is my habit to wrap a wet towel around the top of the fruit jar, so that, in the event of any fumes of alcohol escaping from the jar, these latter will not communicate with the flame of the gas stove or other appliance with which the water bath is heated. One hour's exposure to this heat, in alcohol and under pressure in this manner, will most thoroughly sterilize the suture material, even though it has previously been purposely infected. (See *New York Medical Journal*, vol. xxxviii, August 1, 1890, p. 177.)

Other means of sterilization may be employed. Filling the case with a solution of one of the powerful germicidal agents and then boiling, or, if it pleases the fancy of the surgeon, the boiling may be omitted. Should the process of sterilization by dry heat be employed, the rubber corks may be omitted during the heating process and cotton plugs used, after the manner of the bacteriologists. After cooling, the cotton plugs may be permitted to remain *in situ*, being supplemented by the rubber corks, pushed in position over the cotton plugs.

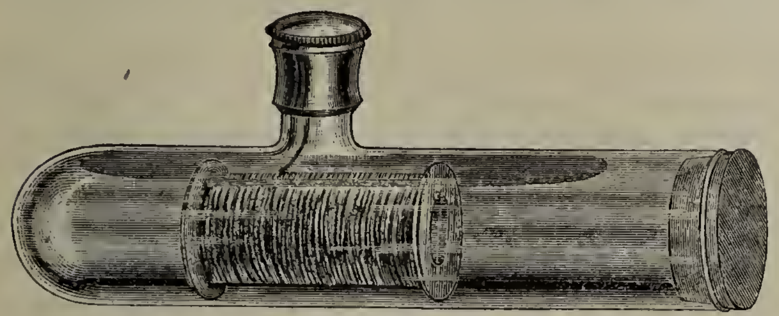

Fig. 2.

Fig. 2 shows the completed apparatus.

Miscellany.

The Junker Inhaler.—At a meeting of the Philadelphia County Medical Society held on November 25th a paper entitled A Modified Junker Inhaler, with Points for Discussion on Ether and Chloroform Narcosis, was read by Marie B. Werner, M. D. She said:

My object in presenting this inhaler before the society to-night is not alone because I consider it the best of its kind ever brought to my notice, and therefore concluded it might be of interest to some of the members here to-night, but also to learn something about the pros and cons regarding the use of ether and chloroform as anæsthetics.

This inhaler has the respiration indicator approved of by the Hyderabad Chloroform Commission, and, in addition, has a graduated stopcock which will, if properly adjusted, control the volume of air forced through the bottle containing the anæsthetic, thus giving a continuous current.

The bottle should be but partially filled (4 to 7 drachms), thus allowing the contents to pass over through the tube to the face-piece in the form of vapor. If chloroform is used, with one compression of the bulb 5·19 cubic inches of air are forced through the liquid, and will evaporate, in a temperature of 68° F., about one minim; a trifle more than one cubic inch of the vapor passes through the short tube into the face-piece.

The noteworthy points are that the patient does not inspire much, if any, of the expired air; the apparatus is clean and can be kept so with little trouble; the quantity of the anæsthetic used is comparatively small; and last, but not least perhaps, the character of the respiration is always indicated to the operator as well as the anæsthetizer.

The character of the respiration seems to be of vast importance if we accept the report of the Hyderabad Commission, based upon an almost unbroken series of 45,000 cases of chloroform administrations extending over forty years, in which the anæsthetizers were guided entirely by the respiration, and there was not a death. In strict accordance with these clinical facts the experimental data of the Hyderabad Commission prove[*]—

"1. That the administration of chloroform is free from risk if the breathing is perfectly regular throughout and the inhalation is stopped as soon as the animal is fully under its influence.

"2. That chloroform never causes death by sudden stoppage of the heart.

"3. That death from chloroform is always the result of an overdose.

"4. That the danger of overdosing is enormously increased by holding the breath, struggling, asphyxia, or anything which causes the patient or animal to take gasping inspirations.

"5. That the inhibitory action of the vagus nerve, which is called into play in threatened and actual poisoning with chloroform, is a safeguard."

I do not wish to give the impression that I advocate chloroform in all cases, but think many will admit that there are cases where it has advantages over ether, provided it can be given with safety to the patient. For instance, in cases of bronchorrhœa it is less stimulating to the mucous membrane; in certain pathological conditions of the kidneys it can be relied on with greater safety. Last and perhaps not least to be considered is the small quantity necessary for a large operation, thereby possibly obviating some of the unpleasant after-effects of ether, notably the nausea, vomiting, and depression which sometimes follow a prolonged operation.

There is one point I have not yet been able to develop, and that is the utility of this apparatus in giving ether. Although I have been assured it would behave satisfactorily, I have not had sufficient opportunities to demonstrate it with any degree of certainty to myself; but feel sure, however, if it could be utilized it would mean economy of ether and greater comfort to the patient.

This inhaler may be obtained from Messrs. Krohne & Sesemann, London.

In the discussion, Dr. Joseph Hoffman said: I have used this instrument quite a great deal, and its utility for chloroform inhalation is unquestioned. The quantity of chloroform required is much diminished by its use; for an extended abdominal operation I have more than once had a drachm of chloroform suffice. Nor have I seen any bad effects from chloroform when this instrument was used, although I do not believe that the bad effects are completely obviated. In two or three cases I have found that ether had to be abandoned and chloroform substituted.

So far as the report of the Hyderabad Commission is concerned, I do not think that in this country it will be accepted as final. The results of experiments on animals are not always applicable to man. In the sudden deaths in man, fatal result is brought about by action of the anæsthetic on the heart, and not on the respiratory apparatus. Chloroform paralyzes reflex action, while ether stimulates it. In children there is little danger from chloroform, and in children too the reflexes are stronger than in adults.

So far as the application of this apparatus to the administration of ether is concerned, I do not think that it will work, as it is not possible to obtain a dense vapor of ether in sufficient quantity. If the apparatus were modified so that a larger quantity of vapor might be produced, the effect might be better. Finally, too, it is to be insisted that, to obtain good results and to escape the dangers of anæsthesia, we must depend rather on the anæsthetizer than on any apparatus he uses.

Dr. James Collins said: I recall very well the time when we had no ether. It was chloroform. Chloroform was found in all the medical chests and was given with impunity. We never thought of danger, provided the man was sufficiently recovered from shock. I saw only one accident from chloroform, and that was after the battle of the Wilderness. We had been giving chloroform all day, when a man came in with a wound of the hand; he took a few whiffs of ether and expired. In his case the rule had not been observed—that is, not to give the anæsthetic when the man was under the influence of shock. The shock from gunshot wounds often acted strangely. Men with severe wounds would walk long distances to the hospital with no signs of shock, and yet when placed in bed would, in a few minutes, present marked evidences of shock. It was with some regret that I saw the reaction against chloroform that came later. Chloroform is certainly more pleasant than ether, and I think that if properly given it is as safe as ether. I have seen death from ether. It was a case of pistol-shot wound; ether was given and the shock came on while the man was under the influence of the anæsthetic, and he died. Many years ago, at the university, we gave a mixture of ether and chloroform. From that I saw no accidents.

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[*] *Lancet*, November 29, 1890.

Dr. Joseph Leidy said: The only death that I have seen from an anæsthetic occurred while chloroform was being administered with this apparatus. The chloroform was administered by a gentleman who had been in the habit of using this instrument almost daily for months. I think, however, the death would have occurred whether the instrument had been used or not.

Dr. John B. Roberts said: I have seen six deaths attributed, and probably justly, to anæsthetics. Fortunately, in none of these was I the administrator of the anæsthetic. I never have a patient etherized without feeling a great deal of discomfort, especially if the ether is given by the ordinary individual that administers ether. The majority of them do not know how to give ether unless they have seen a death, or nearly killed some one by ether. If ether or chloroform is given one hundred thousand times without a death, it is no proof that there is no danger in the administration of ether or chloroform. Although the Hyderabad Commission decided that chloroform was better than ether, yet I think Dr. Wood echoes the sentiment of this portion of the country, at least, when he says that ether is the safer.

It seems to me that the difficulty is that the anæsthetic is placed in the hands of incompetent people, who do not know how to give it and do not pay attention to their work. In several of the cases of death from anæsthesia which I have seen I believe that the result was due to the carelessness of the administrator. A short time ago I saw a patient nearly die from ether, and he was only kept alive by about an hour and a quarter's artificial respiration. The trouble in this instance was due to the fact that I, the operator, called the attention of the anæsthetizer from his work. I have scarcely used chloroform, and have seen very little of its use, but if the evidence of literature is worth anything it is in favor of ether. I do not believe that it is the shock of injury; I believe that it is the chloroform that kills. Chloroform is certainly the more powerful and more dangerous agent. In spite of the objections to ether, it seems to me that the opinion of the Philadelphia profession in favor of ether is correct, and is borne out by the literary evidence.

Dr. T. S. K. Morton said: I have had an opportunity of examining this apparatus, and, so far as apparatus goes, it seems superior to any that I have seen. But I do not see that any method for administering chloroform can be better than the little wire frame invented, I think, by Esmarch. So far as ether is concerned, I dispense with all apparatus; especially do I dislike the Clover apparatus, where the patient respires the same air over and over. In most cases ether is given badly. Just as I have learned to give ether in less condensed form, so have my results been more satisfactory. The cone, as usually employed, is extremely objectionable; and towels as found at patients' houses are usually impregnated with starch and will not absorb the ether or allow air to pass freely through. Unless you obtain very old towels or napkins, either it is difficult to etherize the patient, or you have to give the ether in too concentrated form. Some two or three years ago it struck me that it would be well to use cheese-cloth for this purpose, and since then I have used nothing else. I use small squares, about six by seven inches, consisting of ten or twelve thicknesses of the gauze. This is placed over the patient's face and the center raised up by puckering the lateral edges. This offers no obstruction to the passage of air. The ether is dropped upon the center of the gauze from above. I have etherized a child by this method, and kept it under the influence of the anæsthetic for ten minutes, with but one drachm of ether.

Dr. Werner said: In presenting this apparatus, I did not wish to be understood as advocating the general use of chloroform. It seems that there are some cases in which it can be used with better advantage than ether, and therefore it is well to know the best method of administering it. I think that the trial alluded to by Dr. Hoffman with this apparatus for ether was not a fair test. The patient was difficult to etherize at best, and, seeing that, I used the towel. I had occasion to try it again for a smaller operation, and it answered admirably. In answer to Dr. Morton's remark about the unequal supply of vapor and air, I should like to call attention to the fact that this stopcock, if adjusted properly, will give a continuous current of air. I think Dr. Morton's plan of giving ether better than with the towel. I heartily indorse Dr. Roberts's statement that there is often not sufficient care and attention given by the anæsthetizer to the work in question, and feel certain the operator can work with greater freedom when the mind is at rest in that direction. I think there is room for improvement in the methods of administering both ether and chloroform.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, DECEMBER 19, 1891.

Original Communications.

DISEASES OF THE URINARY APPARATUS.

By JOHN W. S. GOULEY, M.D.,
SURGEON TO BELLEVUE HOSPITAL.

(*Continued from page 651.*)

PART I.—PHLEGMASIC AFFECTIONS.

SECTION II.—SPECIAL CONSIDERATIONS.

IV.

INTERSTITIAL NEPHRITIS, PYELONEPHRITIS, AND PERINEPHRITIS; THEIR NATURE, SYMPTOMS, PROGRESS, DIAGNOSIS, AND TREATMENT.

THE phlegmasic, being the most common of the affections of the urinary organs, should be first examined. The kidneys, ureters, bladder, prostate, bulbo-urethral glands, and urethra, are all subject to phlegmasia with varying degrees of frequency. These affections will be discussed in the order in which the several urinary organs have just been enumerated, beginning with nephritis.

Nephritis—phlegmasia of the kidney—may be secondary to some affection of organs other than the urinary, or to some affection of the lower urinary organs, or may occur as a primary disease. The substance of the kidney only may be affected—nephritis; or the enveloping tissue of the kidney may alone be affected—perinephritis. Nephritis may extend to the enveloping tissue and cause a secondary perinephritis, and a primary perinephritis may extend into the kidney substance and cause a secondary nephritis.

INTERSTITIAL NEPHRITIS.—The species of nephritis that particularly concern the surgeon are interstitial nephritis, pyelonephritis, and perinephritis. By interstitial nephritis is meant a phlegmasia of the intertubular substance of the kidney; by pyelonephritis, improperly termed surgical kidney, is meant a phlegmasia involving the mucous membrane of the renal pelvis and the intertubular substance of the kidney; and by perinephritis is meant a phlegmasia affecting the layer of connective and adipose tissue that invests the kidney. In these cases the phlegmasia may be superacute, acute, subacute, or chronic. It may be descending or ascending.

Descending nephritis is ordinarily secondary to disease of some organ foreign to the urinary apparatus, or to the ingestion of medicinal agents or of poisons, while ascending nephritis is secondary to disease of the lower urinary organs, or to catheterism and other operations upon the urethra or bladder. Both kidneys are generally involved, but in an unequal degree. Descending nephritis may arise without microbic invasion, or may be the result of microbic invasion; therefore it may be amicrobic or microbic.

Descending amicrobic nephritis is the outcome of long-continued abuse of alcoholic beverages, of large doses of potassium iodide and other irritants, or of persistent hyperlithuria. The primary effect of any of these irritants is upon the epithelial cells of the uriniferous tubes, which undergo a molecular necrotic process and are cast away in great numbers. Thus the morbid action is at first parenchymatous, but later diffuses itself and reaches the fibrous tissue and the blood and lymph-vessels constituting the intertubular substance. The kidney greatly swells from plasmatic exudation, consisting largely of leucocytes, and this product of the plegmasia gradually undergoes incomplete organization and finally sclerous degeneration and contraction, rendering the organ nodular and causing it to shrivel, often to less than half its normal dimensions—a condition which is common among persons far advanced in age. This was formerly designated as cirrhosis, but is now known as sclerosis of the kidney, and is ordinarily associated with hepatic sclerosis. The sclerosed kidney is so vulnerable that the copious ingestion of irritants, such as occurs during a debauch, or inhalation of ether necessary to the performance of a surgical operation upon the urethra or bladder, is likely to interrupt or even abolish the function of urination, or to induce a superacute phlegmasia, which proves fatal in a very short time. In such circumstances miliary purulent foci are often found on close necropsic inspection of the kidneys.

An intemperate man of middle age, brought to Bellevue Hospital in the year 1870 on account of a luxation of the left hip, was etherized for the reduction of this luxation, which could not be effected after more than an hour of manipulation. In two days he was again etherized, and kept for an hour under the influence of the anæsthetic agent, during which renewed attempts at reduction were made, but with no better result. It was ascertained on the next morning that he had not urinated. A catheter was then introduced and no urine escaped. He died comatose forty-eight hours after the last attempt at reduction of the luxation. The necropsy revealed sclerosis and extreme irregular contraction of both kidneys. There was no urine in the bladder. It was evident that acute phlegmasia had been superinduced by the large quantity of ether eliminated.

Similar fatal results have since been noted in a number of cases from elimination by the kidneys of large quantities of ether which had been required for anæsthesia during prolonged surgical operations.

The inhalation of ether, even for a comparatively short time, has proved so dangerous to patients with diseased kidneys that, in case of urgent necessity for surgical interference, nitrous oxide should be substituted as a much safer anæsthetic agent, and this precaution may advantageously be taken in doubtful cases, or even when the kidneys are not supposed to be diseased.

In cases of persistent hyperlithuria it occasionally happens that some of the uriniferous tubes are blocked by aggregations of uric-acid crystals. These infarctions may give rise to retention cysts in the kidney, to chronic interstitial nephritis, or to acute interstitial nephritis ending in necrosis of the surrounding tissues and the formation of miliary abscesses, or cause one large chronic abscess, which finally communicates with the renal pelvis. If in the last case the ureter is even incompletely obstructed, ectasia of the renal pelvis follows.

About a year ago a case of renal abscesses and pyonephrosis was observed which seemed to be attributable to this cause. Lumbar nephrotomy was performed by Dr. H. M. Silver, and at least a quart of pus escaped. There was also a secondary perinephric abscess. The wound healed in the course of three months, but, as there was an increasing swelling at the seat of disease during the fourth month, the doctor performed nephrectomy, and found an abscess in the substance of the kidney. The patient made a good recovery, and when last seen appeared to be well.

Hydronephrosis and pyonephrosis will be further examined under the section ectatic affections.

Descending amicrobic nephritis is generally subacute and of very slow development, whether caused by alcoholism, by the ingestion of other poisons, or by hyperlithuria. It is latent, and all subjective symptoms are therefore wanting, and the objective symptoms are few. Its diagnosis is based principally upon the knowledge of the effects of these irritants which prepare the kidneys for an accession of acute phlegmasia from any of the causes that have already been detailed. The fact to be constantly borne in mind is that the kidneys of persons addicted to alcoholic excesses, or subject to hyperlithuria, are nearly all diseased to a greater or less extent and very vulnerable, easily attacked by any of the forms of acute phlegmasia and incapable of resisting their ill effects. Consequently, the greatest circumspection should be exercised in the indication of surgical operations upon such subjects, and in selecting the anæsthetic agent.

Descending microbic nephritis arises from infectious emboli in cases of pyosapræmia and of ulcerative endocarditis. The phlegmasia, in such cases, is caused by the mechanical occlusion of small renal blood-vessels and consequent necrosis of the intertubular substance, leading to the formation of multiple purulent foci which sometimes coalesce and form a single large abscess. In this case the phlegmasia is superacute, fulminating, and fatal in a very short time.

Ascending nephritis may be amicrobic or microbic.

Ascending amicrobic interstitial nephritis occasionally follows surgical operations, even such as simple catheterism, and is generally subacute and bilateral. Sometimes, however, it is superacute and occurs, though with extreme rarity, in previously healthy kidneys. This interstitial nephritis is also the outcome of ureteric obstruction, partial or complete, whether from pressure by a neighboring growth, from an impacted urolith, from a growth in the ureter itself, or from stenosis of the ureter. It ordinarily affects only one kidney. In exceptional cases, both ureters being partially obstructed, both kidneys suffer. Roberts, of Manchester, England, and other observers relate cases of fatal anuria from complete obstruction of both ureters by impacted uroliths. Obstruction of one of the ureters from any of the several causes just mentioned gives rise to retention of urine in, and to ectasia of, the renal pelvis, or even of the straight uriniferous tubes—hydronephrosis; and the consequent hydraulic compression is such as to cause nephritis with final destruction of the kidney structure, leaving little more than a multilocular sac of fibrous tissue. Long-standing hydronephrosis sometimes becomes pyonephrosis from sudden local necrosis due to disturbance in the blood-supply of such renal tissue as may have been intact.

Amicrobic pyelonephritis is sometimes caused by the presence of a urolith or of several uroliths in the renal pelvis, and is designated as calculous pyelonephritis. The pus in these cases consists of migrated leucocytes that have passed through the mucous membrane to attack the urolith and have died in their struggle to destroy the irritating host.

Symptoms.—When acute interstitial nephritis is due to catheterism or to some other surgical operation, its symptoms are a chill lasting from fifteen to forty-five minutes, followed by febrile reaction, or recurring slight chills of very short duration, and a rise of body temperature at night from 100° to 102° F. This nightly rise of temperature and the consequent sweating disturb the patient's sleep, his pulse is unduly frequent, his appetite vanishes, his tongue is furred and sometimes dry, he is more or less nauseated, and at times vomits his food; he is distressed by flatulency, and rapidly emaciates. During the day the skin is dry and harsh. The complexion is pale and sallow. There is no deep-seated pain in the region of the kidney, but only some lumbago. The urine gives no positive indication, except, of course, in the case of oliguria and of chronic diffuse nephritis with casts of the uriniferous tubes. Some of these symptoms may be noted for several weeks and then be no longer appreciable. Resolution may or may not have occurred, and on slight provocation, such as an untimely catheterism, the phlegmasic process may be rekindled and run a rapid course toward a fatal issue. When, however, resolution is fairly established the patient soon apparently regains his normal condition, but his kidneys are vulnerable and very liable to be again diseased. When this condition is provoked by catheterism it is designated as urethral, urinary, or catheter fever.

The diagnosis of acute interstitial nephritis is not easily made. Although this phlegmasia may occur without the provocation of catheterism or of other operations, it is generally caused, directly or indirectly, by some sort of surgical interference—directly by instrumentation, and indirectly by the irritation of the kidneys through their elimination of a large proportion of the ether necessary for anæsthetic purposes, or by the introduction of foreign elements, such as micro-organisms, etc.

It is often difficult to distinguish acute interstitial nephritis from the septicæmic condition induced by the absorption of stale urine, from pyosapræmia, or even from continued fever. Therefore the closest inquiry into the symptoms in connection with the pre-existing state of the patient and the nature of the ætiological factor or factors is necessary to a correct diagnosis.

The prognosis of acute interstitial nephritis is good when the phlegmasia attacks normal kidneys, but is doubtful, if not positively bad, when it attacks kidneys that have already suffered. When, in previously normal kidneys, acute interstitial phlegmasia occurs, resolution, under favorable circumstances, begins in the course of a week, and the patient is soon well. But in already diseased kidneys the phlegmasic process is liable to end in suppuration. If both kidneys suppurate, oliguria, anuria, and death ensue. However, oliguria, and even anuria, are not necessarily indications of suppuration of the kidneys, for either may last several days in patients that ultimately recover from acute nephritis. A patient treated twenty years ago for anuria which lasted four days is still alive.

Anatomical Characters.—On gross inspection of kidneys, removed after death from acute interstitial nephritis, their capsule is found adherent and somewhat opaque, and its vessels are distended with blood. When split open along the outer border the substance bulges on account of the sudden release from compression of the intertubular exudate. It is softer than natural, except in cases of old sclerosis, where it is hard and nodular. The renal pelvis is sometimes in a phlegmasic state, and contains alkaline purulent urine. The pyramids are red in some cases, pale in others, and streaked with lines of purulent exudate. In the cortical substance there are often great numbers of miliary purulent foci distinctly visible to the naked eye.

Microscopical examination verifies the purulent character of the exudate in the intertubular substance of the straight and convoluted tubes.

Treatment.—In cases of disease of the lower urinary organs the liability of secondary renal disease is not to be underestimated, and measures likely to be preventive of acute interstitial nephritis should invariably be taken in the management of such cases. These measures consist in the administration of diluent drinks, of quinine in small doses, of tincture of the chloride of iron in five-minim doses, etc. If there is stagnant urine, it should be carefully drawn off and the bladder cleansed at least once each day with antiseptic solutions. If there is urethral stenosis, cautious slow dilatation should be resorted to and the greatest care observed in catheterism. The patient should be protected against inclement weather and kept indoors. If there is stone or any other affection in the bladder, or intractable urethral stenosis, indicating an operation, the most rigid preparatory treatment should be instituted. When acute interstitial nephritis occurs in previously normal kidneys, and the diagnosis is promptly made, it is desirable to strive to effect deliquescence of the phlegmasic process. This deliquescence can, however, be effected only during the earlier period of the invasion. To this end, free wet cupping in the lumbar regions, followed by hot fomentations, should at once be practiced, and a hydragogue cathartic administered. Even if deliquescence does not occur, this treatment is likely to shorten the process of resolution. During the treatment diaphoretics should be freely employed, and the skin well sponged with warm water and alcohol two or three times daily, and the under-garments changed each time.

When acute interstitial nephritis affects already diseased kidneys, although the chances of recovery are decidedly lessened, the treatment should not be abandoned, but should be as active as in the case in which an attempt is made to effect deliquescence.

Ascending microbic pyelonephritis is the outcome of neglected urethral or prostatic obstruction, vesical stones, tumors, tuberculosis, entozoa, foreign bodies, or injuries and diseases of the spinal cord leading to paraplegia, causing stagnation and fermentation of urine in the bladder, and of the use of unclean surgical instruments, particularly catheters. The phlegmasic action creeps up the ureters and reaches the renal pelves and uriniferous tubes, where several species of bacilli and micrococci find abundant sustenance, multiply rapidly, and finally, invading the intertubular substance, constitute one of the mechanical factors in the suppuration which generally occurs in both kidneys. The process at first may be very slow, and the struggle between the leucocytes and microbia may last several weeks or months, in rare instances several years, when suddenly, perhaps, on the accession of new colonies of these microbia, it becomes very rapid, and sometimes death is hastened by the supervention of a superacute phlegmasia thus induced or incited by an operation which, under the circumstances, no prudent surgeon would countenance. Most of the cases of fulminating pyelonephritis with multiple renal abscesses following surgical operations occur in patients who had long suffered from chronic interstitial nephritis, either descending or ascending, consequent upon chronic alcoholism, hyperlithuria, or obstruction of the lower urinary organs.

The symptoms of this form of pyelonephritis are similar to, but more pronounced than, those of acute interstitial nephritis. The body temperature rises higher. Sometimes the phlegmasia is ushered in by a violent chill; sometimes the chill does not occur until excited by a catheterism or other operation which ends fatally within two or three days—fulminating urinary fever—and at other times there occur every day or two slight chills, which continue during two or three weeks, and lead the unwary to think that the patient is suffering from intermittent fever. It is to be noted that the body temperature in these cases is higher at night and that it often rises above 105°. When pyelonephritis is subacute and due to long-continued urinary obstruction there is generally dull continuous pain in the lumbar region and tenderness to pressure in the course of the ureters, which are also involved in the phlegmasia and more or less dilated by the column of dammed-up urine, which contains a considerable quantity of creamy pus. Emaciation is progressive and rapid; flatulency, nausea, and vomiting are frequent. The features are sallow and pasty; the tongue is dry, brown, and fissured. Finally, there are drowsiness, muttering delirium, oliguria, and anuria.

The diagnosis is based upon the history of the disease and the characters of its symptoms, but in some cases the characteristic symptoms are masked or there are no predominant symptoms, and the nature of the affection is not known until revealed by the necropsy.

The prognosis of microbic pyelonephritis is bad, but the affection, as before stated, may last long—that is to say, the patient may survive an attack of subacute pyelonephritis many months, and in some cases one, two, or three years. The acute and superacute types terminate fatally in from one to four weeks, delirium, oliguria, and anuria supervening a few days before death.

The gross necropsic appearances of the kidneys vary in degree, but are of the same kind. The capsule is adherent, the kidney substance is soft, sometimes pulpy and yellowish, and mottled with congested blood. The pelves and calices are dilated to a greater or less extent and their mucous membrane is red in patches, seldom of uniform redness, coated with a thin layer of slimy pus, and the pelves and ureters are filled with highly purulent urine, the ureters being more or less dilated.

Microscopical examination reveals dilatation of the straight uriniferous tubes, and streaks of pus with colonies of bacteria within and between these tubes, purulent foci in the cortex, and here and there blood infarctions. The epithelial cells of the cortical tubes are opaque and swollen and many of them in a necrotic state. The intertubular substance is infiltrated with bacteria and leucocytes, which have been vanquished in their struggle with these microbia, and have consequently become pus. The microbia even reach the glomeruli, many of which are shriveled, and their capsules appear to be thicker than normal.

Treatment.—In the management of microbic pyelonephritis it should be remembered that any unrelieved source of urinary obstruction leads to stagnation and fermentation of urine in the bladder, causing in time grave alterations of structure in the kidneys, to which palliative measures only are applicable. In the case of urethral stenosis these palliative measures consist in gradual dilatation of the strictured urethra. In the case of prostatic obstruction, they consist of periodical evacuative catheterism. In both cases they consist in counteracting fermentation of urine in the bladder by frequent irrigations with antiseptic fluids.

The quantity of urine passed each day should be constantly kept in view. In case of oliguria or of polyuria, prompt measures should be taken tending to re-establish the normal secretion of the urine. In case of oliguria, which is sometimes the forerunner of anuria, mild diuretics and diaphoretics are indicated. Digitalis infusion and small doses of alkaline diuretics, such as acetate or citrate of potassium, and borage tea, or any other similar beverage, answer the purposes of diuresis and diaphoresis. In case of polyuria, ergot extract in pills may be given in doses of two or three grains, repeated three or four times daily. Gallic acid, in five-grain doses dissolved in glycerin, is also sometimes useful in cases of excessive polyuria. The remainder of the general medication consists in opiates to relieve pain, diluents, occasionally moderate doses of benzoic acid and biborate of sodium, reconstituents, mild stimulants, and a properly regulated diet. Such local and general medication greatly promotes the comfort of patients, and in some instances helps to prolong life.

PERINEPHRITIS—phlegmasia of the connective-adipose envelope of the kidney—arises as an acute, a subacute, or a chronic affection. In the first two states this phlegmasia may speedily resolve, or resolution may be imperfect and end in chronic induration of the adipose capsule, or suppuration may take place and a vast perinephric abscess may be formed. The chronic may begin without previous acute or subacute phlegmasia, and may be discovered only after death.

Rayer, Féron, Hallé, Trousseau, Naudet, Lecygne, Poland, Dickinson, Duffin, Ebstein, Nieden, Bowditch, Gibney, Morris, and many others have elucidated the nature, ætiology, semeiology, diagnosis, and therapy of perinephritis, and more than a hundred special articles on the subject have been published in the last thirty years.

Rayer collected, in 1839, a number of published cases of abscess in the ilio-costal region, and described with masterly accuracy, and, having defined, named perinephritis this phlegmasia of the cellulo-adipose capsule of the kidney.

This affection occurs at nearly all periods of life from the first few years to advanced age. In an interesting series of papers, Dr. V. P. Gibney reports twenty-eight cases of perinephritis in children, of which five were under three years of age, twelve between three and six years, eight between six and ten years, and three between ten and fifteen years. Thirteen of these were males and fifteen were females. The right side was affected in six and the left side in seven of the males. The right side was affected in eight and the left side in seven of the females.

Of one hundred and sixty-six cases reported by Nieden, twenty-three were under fifteen years of age.

Naudet regards perinephritis as an affection of adults, as rare in old age and still more rare in childhood, and does not seem to have known of a sufferer from this ailment younger than ten years.

Lecygne is of opinion that perinephritis occurs mainly during the most active periods of life—*i. e.*, from the ages of thirty to sixty, then from ten to twenty.

The question of this relative frequency can be decided only by the analysis of many thousands of cases.

Perinephritis sometimes occurs as a primary affection, which may or may not result from injury, but which is independent of any kidney lesion. It is oftener consecutive to injuries or to affections of the kidney—such as nephric abscesses, pyonephrosis, pyelonephritis, calculous concretions, parasites, tuberculosis, malignant disease, etc.—and it is also consecutive to caries of the vertebræ, pyelitis, ulceration of the small intestine and colon, and to disease of other organs.

Primary perinephritis is said to be occasionally due to dyscrasic influences such as give rise to gout and rheumatism, but most commonly it is due to strains, contusions, and wounds.

Of the one hundred and sixty-six cases of perinephritis collected by Nieden, twenty-four were primary.

Contusions, strains, and falls were the causes in eight of Dr. Gibney's twenty-eight cases; in nineteen of these cases the exciting cause could not be ascertained.

Of twenty-eight cases of perinephric abscess due to primary perinephritis, tabulated by Poland, the causes are stated as follows: Falls and contusions in three cases, jolting in carriage in one, fatigue in walking in one, muscular effort (digging) in three, debility in one, uncertain and insidious in four, no assignable cause in six, cause not stated in six, and doubtful in three cases (Morris).

Secondary perinephritis is most frequently consecutive to renal affections. A nephric abscess may be so near the surface of the kidney that perinephritis is soon established by this propinquity, but some time may elapse before the nephric abscess opens, if it open at all, into the peripheral pus cavity. In the case of pyonephrosis the pus may pass through a perforation of the wall of the dilated renal pelvis into the peripheral connective tissue and cause an extensive perinephric abscess, just as in pyelonephritis the tissue destruction and the communication may be through the substance of the kidney. This is sometimes effected by the irritating presence of a calculus, of parasites, of tuberculosis, or of malignant disease.

In a case of left perinephric abscess seen in consultation eleven years ago the necropsy showed the suppuration to be owing to urinary infiltration due to the destruction of renal tissue by the rapid extension and softening of malignant disease primarily affecting the kidney.

In a large proportion of cases perinephritis is consecutive to disease of organs other than the urinary, such as perforation of the ileum, colon, or gall-bladder, as perityphlitis, pulmonary abscess, or caries of the vertebræ, and even to affections of and operations upon some of the pelvic organs. The kidney substance is sometimes attacked and in part destroyed by the phlegmasia which began in the peripheral adipose tissue, so that pus is discharged into the urinary bladder.

Of twenty-six cases of perinephric abscess collected by Duffin, twelve were consecutive to affections of organs other than the urinary.

The symptoms of perinephritis vary with the cause and the intensity of the phlegmasic process. In primary perinephritis, supposed to be due to dyscrasic influences, the phlegmasia being subacute, there is, in the lumbar region, a constant dull pain sometimes regarded as simple lumbago, and many months may elapse before tumefaction and tenderness to pressure are appreciable. The movements of the patient, though somewhat impeded, intensify the existing local pain, which is then propagated to the thorax, to the inguinal region, and even to the lower extremity. This irradiation of the pain leads the sufferer to believe himself the subject of muscular rheumatism, and the nature of his real ailment is unrecognized until a marked tumefaction is revealed and fluctuation detected. Meanwhile he had often had a rise of body temperature and had been restless at night, his appetite had vanished, he had sometimes vomited his food, had been distressed with flatulency and constipation, emaciation had begun, his strength had failed, and for several weeks he had been unable to make even slight muscular exertion without greatly increasing his local pain, and unable to extend the thigh on the affected side without much suffering. In these cases the urine gives no indication other than the presence of an abundance of urates, with high specific gravity.

When primary perinephritis is the outcome of a severe contusion or some other grave injury, the symptoms are more quickly appreciable as a general rule. The phlegmasia being acute in the majority of cases, the pain is greater and is much intensified by movements of the lower limbs, and, though this pain follows the course of the lumbar and sciatic nerves, its point of greatest intensity is the loin, which is hard, tense, bulging, and tender to pressure. In the course of ten or twelve days the pain is lancinating, excruciating from pressure by increased exudation, and at nightfall come rigors and febrile reaction. The thigh is flexed upon the pelvis for the relief in part of the existing tension and pain. A marked swelling then occupies the ilio-costal space, and sometimes extends inward toward the median line and downward into the iliac region. These parts are œdematous, and the œdema spreads into adjacent tissues upward upon the thorax and downward into the inguinal, gluteal, and femoral regions, rendering difficult the detection of fluctuation in the lumbar region. The integument in or about the ilio-costal space sometimes assumes an erysipelatous redness, an indication that the pus is rapidly extending itself toward the surface.

The symptoms of consecutive perinephritis, whether due to nephric abscess, to pyonephrosis, or to diseases of other organs, are similar in kind but not in degree to those of primary perinephritis. But these symptoms are often masked by those of the particular affection which has caused the perinephritis. For instance, pyonephrosis is diagnosticated, an operation is decided upon, the incision in the flank is made, a few ounces of pus flow from an unsuspected perinephric abscess, and the swelling is little diminished until a deeper cut is made, when perhaps a quart of pus escapes from the dilated kidney and the swelling vanishes. This happened in the case cited to illustrate pyonephrosis due to partial obstruction of the ureter.

In the case of consecutive perinephritis due to calculous pyelonephritis, many months or even years may elapse before the symptoms are manifested, and while the nature of the pyelonephritis is ascertained partly through the occurrence of repeated attacks of nephritic colic and the expulsion of small calculi by the natural passage, the perinephritis is undiscovered until a lumbar operation reveals its existence.

The same difficulty occurs in the perception of the symptoms of consecutive perinephritis due to disease of other organs by which it is masked until the swelling at the ilio-costal space is well defined.

In children the symptoms of consecutive perinephritis are even less appreciable than in adults, for they often closely simulate those of spinal and hip-joint disease until the ilio-costal tumefaction is evident, this affection and spinal caries sometimes coexisting.

The progress of perinephritis may be so rapid that its several stages follow in quick succession and the termination may be resolution or gangrene, but most commonly it ends in the formation of an abscess within ten or twelve days, or this progress may be very slow and suppuration may not take place for many months or years after the beginning of the phlegmasic process.

Under favorable circumstances the process of resolution ends in from two to three weeks.

The early writers on this subject, particularly Rayer, considered resolution to be an extremely rare termination of perinephritis, but later experiences, with early and accurate diagnosis, and perhaps improved therapic measures, give a fair proportion of cases of primary perinephritis that have terminated in resolution without suppuration.

Rayer does not appear to have seen a single case of perinephritis terminate in resolution without suppuration.

Hallé cites only one case which appeared to be a perinephritis and ended in resolution, but he had a doubt as to the correctness of the diagnosis.

Trousseau reports a case in which the diagnosis of acute primary perinephritis was undoubted, and which terminated in resolution without suppuration.

Naudet mentions only one case which resolved without suppuration.

Twelve of Gibney's twenty-eight cases (1876 to 1880) ended in resolution without suppuration.

Further examination of the question will probably show that resolution occurs oftener in primary perinephritis than it even now appears.

Gangrene is a very rare termination of perinephritis. Rayer cites only two cases, one of which he credits to Dr. Thomas Turner (1812) and the other to Blaud (1818). In Turner's case, he says, the affection was fulminating and the patient died at the end of the second day. The autopsy revealed gangrene of the adipose capsule of both kidneys, forming a black, pulpy mass. In Blaud's patient the gangrene was probably due to urinary infiltration of the adipose capsule.

When suppuration occurs, its duration varies with the cause of the perinephritis, the general condition of the patient, and the direction taken by the pus. In perinephritis due to perforation of the renal pelvis or substance by a stone, the suppuration persists until the calculous mass is removed or discharged, weeks, months, or years after its formation. In a case of perinephric abscess opened by the late Dr. James R. Wood, pus continued to flow through a lumbar fistula for more than fifteen years. Occasionally this fistula was obstructed by small stones which were finally expelled.

The ordinary course taken by the pus of perinephric abscesses is backward in the lumbar region, but it has been known to burrow downward into the pelvic cavity and open into the bladder, rectum, or vagina, down into the gluteal and even the femoral region, or upward into the pleural cavity and cause empyema, into the lung and there cause a secondary abscess which, if it open into a large bronchus, is expectorated, or it may open into the stomach or some other part of the intestinal tract. It very rarely enters the peritoneal cavity.

What may be the average duration of perinephritis is another question which can be answered only after the analysis of great numbers of well-recorded cases. However, this phlegmasia, when uncomplicated, runs the course of phlegmasiæ in general.

In twenty-seven of the twenty-eight cases treated by Dr. Gibney, the phlegmasia "ran its course in an average period of about three months and a half." This includes the twelve cases which ended in resolution. One case not included in the computation "seemed to extend over a period of two years and a half."

In the great majority of cases of perinephritis terminating in suppuration the phlegmasic process is quickly modified, and often as quickly arrested as soon as free exit is given to the pus.

A case seen with Dr. Stephen Smith in January, 1891, is a fair illustration of the rapidity of cure sometimes afforded by free incision and thorough disinfection. The patient, a man of twenty-seven, had been ill for six weeks from pain in the right loin, but could give no further account of himself. At the time of the visit he appeared dazed and typhic. The ilio-costal space was prominent, the integument in that space was œdematous and red, and the œdema and redness extended into the inguinal region. A question arose as to whether the case was one of perinephritis or perityphlitis, or of both, but Dr. Smith was inclined to believe that the swelling was due to a suppurating perinephritis. An exploratory operation was advised, and was performed on the following day. The abdominal cavity was opened, but no perityphlitis was found, and the wound was closed. A lumbar incision then gave issue to a copious flow of thick, greenish pus. The abscess cavity was thoroughly washed with a solution of mercuric chloride, a drainage-tube was introduced, and the wound stitched. From that moment there was no more pus formation, and in twenty-five days the parts seemed entirely consolidated, the drainage-tube having been retained two weeks for periodical irrigation.

The diagnosis of perinephritis is often attended with difficulties, particularly in its early stage before tumefaction is palpable, and it is sometimes difficult even after the occurrence of suppuration. In primary perinephritis the history of injury in the lumbar region is of great help, but the patient may not then remember to have been hurt, and the cause of his ailment may be unknown. At its onset the deep-seated local pain is worthy of consideration, though it is not strictly a diagnostic symptom, as it may arise from some other cause, such as typhoid and eruptive fevers, and it may be several days before this pain can be distinguished from that which characterizes these fevers. A point worth bearing in mind is that in typhoid and eruptive fevers the pain is in both lumbar regions, is irradiated throughout the muscular system, and is attended with great general lassitude and prostration.

Later, when tumefaction is manifest, it may be confounded on the left side with splenitis, or with impaction of fæces in the descending colon; on the right side with hepatic abscess, or with typhlitis or perityphlitis; and on either side with renal abscess. Here again the diagnosis is arrived at by the method of exclusion.

Still later, when suppuration has taken place, especially when the abscess formation is slow, it may be confounded with hydronephrosis, pyonephrosis, or hydatid cysts; but, on careful analysis of the symptoms, these affections are soon, one by one, excluded from further consideration. These three affections are to be excluded when the phlegmasic process is characterized by œdema of the integuments, a deep, doughy sensation on palpation, tenderness on pressure, and acute pain. In hydronephrosis and hydatid cysts there occur neither rigors nor febrile reaction. In any doubtful case an exploratory puncture or incision is indicated, and this generally establishes the diagnosis.

Two other morbid conditions are sometimes confounded with perinephric abscess—caries of the vertebræ and coxitis—and this error has led to special treatment for these affections until the abscess has pointed in the lumbar region and has been relieved by incision, when all the signs of vertebral or hip disease have vanished.

In the case of a small perinephric abscess the diagnosis is uncertain, and the exploratory incision by which it may be established is warranted only by symptoms such as frequently recurring rigors and continuous deep-seated lumbar pain.

In the treatment of perinephritis the first indication is to strive to effect resolution; this failing and suppuration ensuing, the second indication is to promptly give exit to the pus, and the third indication is to endeavor to thoroughly disinfect the abscess cavity.

Even if there is a doubt as to the existence of perinephritis, the symptoms of phlegmasia in the lumbar region warrant a vigorous antiphlogistic treatment, which should be instituted as soon as the first symptoms are manifested. For this end, six or eight wet cups or a dozen leeches should be applied to the loin on the affected side. The cupping or leeching should be followed by hot fomentations for two or three days. The existing constipation should be relieved by a cathartic, and the catharsis kept up by salines. Anodynes should be given in sufficient doses to relieve pain and insure sleep. On the third or fourth day blistering, produced by vesicating collodion, may be resorted to with advantage. The blistered spaces need not be over two inches in diameter, but this blistering should be repeated every second day, each time on a different spot, and allowed to dry up without suppuration. During the blistering, which may be continued for two weeks, the fomentations should be replaced by a thick layer of dry absorbent cotton. If, during this time, the pain, tenderness, and swelling perceptibly diminish, this subsidence indicates that resolution is going on, and the process may then be promoted by inunction of the ilio-costal space twice daily with a salve composed of one ounce of belladonna ointment, one ounce of simple cerate, and two drachms of potassic iodide, the whole region to be covered with absorbent cotton. The diet should be simple but nourishing, and the strength of the patient maintained, if necessary, by the free exhibition of alcoholic stimulants.

The antiphlogistic treatment, if it is to be successful, should produce the most marked modification of the phlegmasic process during the first few days; otherwise if, in the course of ten or twelve days, there should be much febrile reaction, increased and increasing tumefaction with œdema of the integuments, whether or not fluctuation is detected, it is almost certain that suppuration has begun. Then, without delay or hesitation, a free incision should be made in the lumbar region corresponding to the anterior border of the quadratus lumborum muscle, and the dissection carried through the aponeurosis of the flat abdominal muscles close to the border of the quadratus, meanwhile securing all bleeding vessels until the abscess wall is reached and freely incised. The index finger is then introduced before the abscess is emptied, and the nature of the perinephritis ascertained. If a free calculus is detected, it should be extracted without delay. But if only a part of a calculus projects into the abscess cavity, the knife or the thermo-cautery is necessary to enlarge the opening through which it projects from the kidney, and great caution should be observed in its extraction, which is effected by lithotomy forceps. Sloughs of connective tissue may be loosened with the finger and extracted with dressing forceps.

The third indication, the disinfection of the abscess cavity, is effected by means of the ordinary irrigating apparatus used by surgeons. The irrigation should be begun with a warm solution of mercuric chloride (1 to 10,000) and five per cent. of peroxide of hydrogen. After using three or four pints of this solution, its strength may be increased to 1 to 5,000 and ten per cent. of peroxide of hydrogen. The irrigation should be continued until the escaping fluid is clear and entirely free from pus. A large drainage-tube should then be introduced, and the wound stitched and suitably dressed.

Under favorable circumstances the abscess cavity is soon obliterated and the external wound healed. It is, however, wise to keep the drainage-tube in position for ten days or two weeks, irrigating once a day, even if no more pus should flow. The brevity of the convalescence after this operation is sometimes surprising. In Dr. Smith's case there was no suppuration after the disinfection of the abscess cavity, and the patient was well in twenty-five days.

In some cases of consecutive perinephric abscess it is not wise to encourage early closure of the wound, and an ample drainage-tube should be kept in position and shortened from time to time until the cavity is obliterated.

TUMORS OF THE ORBIT,

SECONDARY OR CONSECUTIVE TO TUMORS OF THE NEIGHBORING BONY CAVITIES.*

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In considering the subject of tumors involving the orbit, it is important to distinguish between those tumors which originate in the orbit, either in the orbital tissue itself, the sheath of the optic nerve, or the periosteum of the bony walls, and those which arise in some one of the neighboring bony cavities, and which involve the orbit secondarily. This distinction is important, not only from the diagnostic standpoint, but also from the side of surgical interference; for the location and extent of a growth involving the orbit frequently decide not only the question of an operation, but also the nature and extent of the operation itself. Many of the so-called orbital tumors arise in the ethmoid cells, the sphenoid antrum, the frontal sinus, the naso-pharynx, or the maxillary antrum. It is a well-known fact that tumors of the bones of the skull or of the sinuses contained within these bones may, and generally do, extend in every direction from one sinus or labyrinth to another, and often exist for a long time and reach a large size before appearing in the orbit. The growth of these tumors is generally slow and insidious, though occasionally it is exceedingly rapid. A very extensive disintegration of the ethmoid, sphenoid, and maxillary bones from tumors starting in their respective sinuses may have already occurred before the presence of such a growth is manifested in the orbit by the usual signs of protrusion or displacement of the eyeball, pain on pressure along the orbital walls, or directly backward, and the visible or tangible presence of the growth itself within the orbit.

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These tumors, in the literal, narrow sense of swellings, may be either fluid or solid. The former almost always arise in the frontal sinus or ethmoid cells, and contain pus or mucus. The latter are either solid or densely gelatinous, are always malignant in character, and arise in the maxillary, sphenoid, or ethmoid antrums. Finally, a by no means uncommon growth in this locality is a bony tumor or a real ivory exostosis arising from the bony walls surrounding the orbit. A brief glance at the anatomical relationship of the bones at the base of the skull will enable us to understand more clearly the nature of these growths and the important relations they bear to the cavity of the orbit and its contents.

The *frontal sinuses* are situated within the frontal bone at the level of the nasal boss of that bone, just above the root of the nose. They are usually two in number, separated by a more or less complete partition of bone, which is generally, though not always, in the median line. Their dimensions are very variable, but their size usually increases with the age of the patient. Their form is very irregular. The anterior wall is thickest, while the cranial and orbital walls consist mainly of compact bony tissue, with a thin layer of cancellous tissue in the center. Each frontal sinus opens into the infundibulum of the ethmoid by a canal in the anterior cells of this bone, and called the frontal or fronto-nasal canal. Each sinus is lined by a thin, smooth, rosy mucous membrane, slightly adherent to the bone, and consisting of two layers—one mucous, the other periosteal.

The most frequent diseases met with in the frontal sinus are: *First*, mucocele, or a collection of mucus; and, *second*, abscess or empyema. Empyema or abscess of the frontal sinus is usually an affection of adult life, though it is met with most frequently between the ages of twenty-five and thirty. It does not occur in childhood, as the sinuses are not developed to any extent at this period of life. It is found oftener among men than among women, and this is probably due to anatomical peculiarities such as the following: The sinuses are much more developed in men than in women, the infundibulum is wider and communicates more directly with the nasal fossæ, and through the latter with the external air. Hence infectious agents may more easily enter them. The left frontal sinus is more frequently attacked than the right, and the cause of this is as yet unknown. It is not uncommon to find, at the time of operation, that the suppurative process began in one sinus, perforated the bony sæptum, and involved the other sinus secondarily.

The *ætiology* of suppuration of the frontal sinuses is somewhat obscure. It has been attributed to *tuberculosis* and *syphilis*, but this is not strictly correct. Both these constitutional affections may produce an osteo-periostitis of the frontal bone, accompanied or followed by extensive caries or necrosis and profuse suppuration, and the frontal sinus may be invaded by the pus, but always in the direction from without inward. The same argument applies to *erysipelas*, though here it must be admitted that the diseased process might extend through the mucous membrane of the nasal fossæ to the infundibulum, and thence to the frontal sinus. The sinuses have also been known to suppurate during the decline and convalescence of scarlatina and typhoid fever, and during a severe attack of influenza. Wounds of the superior orbital margin may possibly produce abscess of the sinuses, but only after a long lapse of time, the diseased process extending gradually through the bone. Foreign bodies, whether inert or alive, on entering the nasal meatus and penetrating to the sinus, may set up a chronic suppurative process. Inflammatory lesions of the mucous membrane of the nasal fossæ are found to exist in many cases of abscess of the frontal sinus. Finally, polypi of the nasal fossæ have been known to precede the development of abscess of the sinus.

All these are, of course, mainly predisposing causes. In order that suppuration should occur in a frontal sinus, there must be an entrance and proliferation of pyogenous microbes in the cavity of the sinus. The latter may penetrate directly into the sinus without infecting the nasal fossæ, or the suppuration of the sinus may be induced by that of the nasal fossæ. In the latter case, infection of the sinus may occur through the frontal canal or infundibulum, or by way of the lymphatics. Once invaded by the microbes, the mucous membrane of the sinus swells and becomes thicker, and thus the canal of the infundibulum is narrowed and eventually obliterated. Then the pus begins to accumulate in the sinus. In simple catarrh of the sinus the infundibulum becomes closed, but here the result is an accumulation of mucus, and not of pus. If this is to become an abscess, there must be a second element of an infectious nature present. When a sufficiently large opening has been made into the sinus and the pus has been discharged from the abscess, the mucous membrane lining the sinus is seen to be red and inflamed, swollen and thickened, sometimes to ten or twelve times its natural thickness. Its surface is rough, granular, and even fungoid. Large quantities of these fungoid excrescences may be removed with a curette, or destroyed by the injection of some caustic. The disease may perforate the bony wall of the sinus naturally, usually the inferior wall, but always by a small opening; or it may perforate the cranial wall and enter the cavity of the skull. Here the dura mater usually limits the extent of the abscess. Sequestra of bone are not uncommon, but they are usually very small and float freely in the pus. When these cases yield rapidly to treatment they are of two kinds: either the abscess has been a recent one, which has produced superficial lesions of the mucous membrane, or there has been extensive necrosis. In the latter case the frontal and orbital walls of the sinus have been cast off, the cavity of the sinus has disappeared, and cicatrization has followed, leaving a deep pit or hollow in this region. The *diagnosis* is difficult, especially in the beginning.

Guillemain thinks there is only one constant symptom, the supra-orbital pain, which is sometimes intense. But I have known cases of abscess of the frontal sinus in which there was never any pain at any time during the development of the abscess. The disease usually resists all medication, and only disappears when the pus is evacuated. If with the pain there is coryza, ozæna, or a purulent discharge from one nostril, and the frontal boss is painful and protuberant, and if the eye is displaced downward and outward, the lesion is almost certainly in the sinus, though it may not be abscess. Hence in these cases a thorough anterior and posterior rhinoscopic examination should always be made. At a more advanced stage of the malady, when the orbit is involved, the diagnosis may be still more difficult, unless the disease is of the acute variety, when there may be some of the signs of acute inflammation present. Still, even here, while there may be displacement of the eye downward and outward, there is rarely any protrusion of the eye forward. A small orbital abscess, lying behind the tendon of the orbicularis muscle, compressing the canaliculus and causing epiphora, might be confounded with abscess of the lacrymal sac, but if a probe can be passed into the sac the latter possibility is excluded.

Treatment.—If we are sure that an abscess of the frontal sinus is present, the indications are to open it as soon as possible, drain it carefully and inject antiseptic solutions, and thus put a stop to the suppurative process. The incision should be made, starting from near the inner canthus, immediately beneath the superior orbital arch, directly outward, and from an inch and a half to two inches long, so that if the bony wall of the sinus, which is here very thin, has not already been perforated, it may be easily opened. The pus then flows out, and the sinus should be thoroughly washed out with a solution of mercuric bichloride (1 to 1,000). The opening should be large enough to admit the little finger, and the cavity of the sinus should be carefully examined for fungoid granulations or osteophytes, and these, if found, should be thoroughly removed. Then the sæptum between the sinuses should be examined for a perforation, for in some cases this partition wall has been found not only perforated, but nearly entirely absorbed. A drainage-tube should then be inserted, and the cavity carefully washed out twice daily. The re-establishment of the channel of communication between the sinus and the nasal fossa is sometimes advisable. This may be done by opening into the ethmoid cells by chisel or mallet, or by trephine, or by introducing a catheter through the fronto-ethmoidal canal and then a drainage-tube through the nose, after the plan advocated by Panas. After the opening of the sinus along the orbital margin, the first thing necessary is a thorough irrigation of the sinus. After the pus ceases to be discharged through the drainage-tube, the cavity generally begins to granulate from the bottom, and in from three to four months the cavity has usually entirely healed.

The Ethmoid Cells or Labyrinth.—The air cells or spaces of the ethmoid form a pneumatic labyrinth, which increases in width from above downward. From the uncinate process to the cavity of the skull the ethmoid is pushed into the cavity of the nose. Anteriorly it is connected with the lacrymal bone, and posteriorly it is often connected with the orbital portion of the palate bone. The posterior ethmoidal cells and the cavity of the sphenoid bone open in the upper nasal meatus. In rare cases the ostium maxillare is absent, and the maxillary antrum communicates with the ethmoid cells and sphenoid antrum. Sometimes the ethmoid labyrinth sends processes into the frontal sinuses, and occasionally the lateral ethmoid cells project very markedly toward the orbit.

The Sphenoidal Sinus or Antrum.—The anterior, posterior, and lateral walls of the sphenoidal antrum or sinus are always thin, and sometimes very thin. The anterior wall may be entirely wanting, and then the sphenoid sinus opens into the ethmoid cells. The hollow spaces in the ethmoid and sphenoid bones are by some regarded as a respiratory organ for the anterior and middle fossæ of the skull. However this may be, the anatomical relations between ethmoid and sphenoid are so intimate that any chronic process, such as a morbid growth, starting in the sinus or cells of either bone, is almost certain to involve the other at a comparatively early date.

The *symptomatology* of the diseases of these bony cavities in the vicinity of the orbit is always perplexing, and a diagnosis is thus rendered extremely difficult. In inflammation of the frontal sinus pain is sometimes felt in the region of the inner or nasal end of the eyebrow. In inflammation of the maxillary sinus, pain is usually felt in the infra-orbital region. In inflammation of the ethmoid cells or sphenoid antrum, positive subjective symptoms are wanting. Inflammation of the mucous membrane of these adjoining cavities can by no means be readily distinguished from inflammation of the bony walls of these cavities. In intense suppurative inflammation the periosteum suffers also, and this may lead to necrosis. It is probable that in the many cases of nasal disease in which orbital abscess is observed the inflammatory process extended from nose to ethmoid cells, and thence to the orbital tissue. The reverse may also be the case, the disease starting in the orbit and extending to the ethmoid cells and thence to the nose (see Vossius, *Archiv für Ophthalmologie*, xxx, 3). Collections of pus in the frontal sinus may lead to orbital abscess, and even to abscess of the brain, through the medium of the ethmoid cells. An inflammatory process may extend from the maxillary antrum to the ethmoid cells, orbit, and brain (see *Edinburgh Medical Journal*, May, 1866), the walls of the ethmoid cells here becoming absorbed by pressure from the abscess. In caries of the lamina papyracea the subjective symptoms are dull pain, increased by pressure in the neighborhood of the diseased bones, and vertigo. Redness of the lids at the inner canthus may be present. A hard tumor may be felt at the inner canthus, and later occur fluctuation, strabismus, diplopia, exophthalmia, limitation of the movements of the eyeball, and the vision becomes reduced.

Owing to defective closure of the lids, ulceration and perforation of the cornea may occur, followed by phthisis bulbi.

In all cases of inflammation the opening of the ethmoid cells, evacuation of the pus, and the removal of fragments of carious bone are justified, especially if it is supposed that pus has formed. There may be indications also for opening the neighboring cavities, such as the frontal sinus, the nasal meatus, the sphenoid and maxillary antrums.

In *mucocele* of the *ethmoid cells* the symptoms are a gradual painless development of a tumor on the inner wall of the orbit, which later shows signs of fluctuation. The eye is pushed forward and outward and sometimes downward. Until fluctuation appears, it may be confounded with an osteoma growing from the inner wall of the orbit. Puncture or incision of the tumor will decide the diagnosis. It is very often connected with a similar condition of the frontal sinus, but it may proceed directly from the nasal meatus.

Naso-pharynx.—Polypoid growths in the naso-pharynx may extend into the ethmoid cells. They may possess a partly cartilaginous consistency. It can not be definitely determined whether all the visual defects which occur in polypi of the naso-pharynx are caused by pressure of the after-growth on the optic canal, or in the ethmoid cells, and thence against the inner wall of the orbit. Whatever the cause, the loss of vision is due to pressure on the optic nerve.

Enchondroma of the *ethmoid* is very rare, and always starts from the base of the skull.

Polypi originating in the ethmoid cells and confined within these limits are relatively rare, but nasal polypi usually start from the ethmoid. Polypi of the naso-pharynx, on the other hand, not uncommonly penetrate the ethmoid cells. When the bridge of the nose seems widened, the orbit is narrowed by the pushing outward of the inner wall of the orbit, and protrusion of the eyeball in various directions results.

Fibroma originating in the ethmoid itself has been observed but once (see *Wiener med. Jahrb.*, 1882), and hence it is generally believed that a fibroma involving the ethmoid usually starts from the bones of the nose.

Osteoma of the ethmoid bone usually starts from some neighboring cavity. The first objective symptom is a very hard tumor at the inner canthus of the eye. Then follow swelling of the neighboring part of the cheek, protrusion of the eyeball forward and outward, and diplopia. The inner canthus is pushed forward, as are also the nasal and lacrymal bones. The tumor also usually involves the nasal meatus, pushes the sæptum nasi to one side, and closes one or both sides of the meatus. It pushes the hard palate downward. The vision may be normal or diminished. There may be choked disc and suppuration of the cornea from an inability to close the lids completely over the eye. If the osteoma of the ethmoid be encapsulated, it may easily be separated from its bony attachments. These osteomata never tend to penetrate the cranial cavity, and in this they differ from bony tumors of the frontal sinus. Their operative removal is not as a rule difficult. If, on the contrary, they arise from the frontal sinus and penetrate the ethmoid, their removal is usually dangerous and gives bad results.

The Sphenoid Bone.—Disease of the body of the sphenoid, whether ending in caries and necrosis or not, may cause not only exophthalmus, but disturbance of vision (see *Klin. Mon. für Augenheilk.* for August, 1863), on account of the close proximity of the optic canal. Pain occurring in the course of disease of the body of the sphenoid may show itself in a totally different part of the area of influence of the trifacial nerve, and thus lead to a faulty diagnosis. (See *Union méd.*, 1872, and Virchow's *Archiv f. path. Anat. u. Physiol. u. f. klin. Med.*, xvi, 5 and 6.)

Polypi in the sphenoidal sinus may develop there independently, or they may originate in the naso-pharynx and penetrate thence into the sphenoidal sinus and ethmoid cells. They may also perforate the bone and enter the middle fossa of the skull, and even cause meningitis without giving rise to any disturbance of vision.

Osteomata of the sphenoid may start from the periosteum or the diploe. In many cases they are developed from the embryonic remains of cartilage, and sometimes arise in the cavities themselves. They tend to penetrate the cavity of the skull, and, by compression of the optic nerve in the optic canal, early lead to blindness of both eyes.

Hyperostosis and *exostosis* of the sphenoid may produce the same orbital and ocular symptoms as osteoma of the sphenoidal sinus does.

Enchondroma of the sphenoid is excessively rare, only one case having been reported in literature.

Sarcoma.—In sarcoma of the base of the skull it is generally very difficult to determine the point of origin. Virchow says that they never start primarily from the mucous membranes of cavities, but from the underlying bone; and the mucous membrane is either secondarily affected or pushed forward by the growth. The general symptoms are here loss of sight, hearing, and smell, facial paralysis and neuralgia, vertigo, somnolence, vomiting, loss of memory, hemiparesis, and loss or impairment of speech. Death results from meningitis or encephalitis. There is no record in literature of sarcoma beginning primarily in the ethmoid, but it may extend into it, and thence through the lamina cribrosa into the cranial cavity or through the lateral wall of the ethmoid into the orbit.

Carcinoma.—Only one case is reported where the carcinoma started in the sphenoidal sinus.

Maxillary Antrum.—The most frequent pathological process met with in the maxillary sinus is *empyema* or *hydrops* of the antrum. Pus may collect in the antrum as a consequence of catarrhal inflammation extending from the nose. The patients usually complain of pain in the region of the upper jaw, and if the collection of pus be considerable, it may flow into the nasal meatus and out through the nostril or back into the pharynx when the patient lies on the opposite side. Empyema is not a common affection, because the lining mucous membrane is very thin and poorly supplied with follicles. The most common source of purulent inflammation is from disease of the teeth, especially of the posterior molars, forming either subperiosteal abscess or abscess of the antrum itself. Another form of disease met with in the antrum is *polypoid cysts*, which may originate here, but are much more likely to arise in the naso-pharynx and involve the antrum secondarily.

Tumors.—Pathological new growths of the superior maxilla differ in their clinical appearances according as they start from the alveolar arch or from the body of the bone. The former are, of course, visible in the mouth. Tumors of the antrum are difficult to recognize if they have not already caused distention of the sinus. The symptoms are pain in the upper teeth, a dull pain in the region of the antrum, discharge of pus and blood from the nose in lying down, and more or less epiphora or overflow of tears. As the tumor grows, the walls of the antrum are gradually absorbed and a new thin scale of bone is developed from the periosteum. This may occur in the anterior wall, or in the orbital wall, or in the alveolar wall, and the tumor soon extends toward the nose and causes great enlargement of the hole communicating with the nasal meatus. These nasal growths extending from the antrum are often erroneously mistaken for nasal polypi. Finally the growth frees itself from its bony envelope and comes to lie immediately under the soft parts. If a swelling appears simultaneously in all the above places, a diagnosis may be made of tumor in the antrum. Protrusion of the anterior wall of the antrum alone might mean a cyst of one of the tooth cavities or a periosteal tumor, as well as a tumor of the antrum. In such cases puncture with a trocar would probably differentiate between an external and an internal tumor. Later the diagnosis becomes more difficult. A large tumor of the antrum would probably increase the breadth of the cheek, would push the nose toward the opposite side, and would push the eye upward and outward. If the tumor grows from the bone itself, the inferior orbital margin is decidedly broadened. Tumors of the antrum itself rather tend to break through into the nose, the mouth, or the orbit.

Tumors of the superior maxilla, whether they start from the bone or the antrum, gradually extend into all the neighboring cavities. They early involve the nasal meatus, thence extend into the spheno-maxillary and palatine fossæ and pharynx, and finally perforate the base of the skull. They usually involve the orbit later, and sometimes extend into it from the ethmoid cells, even before the floor of the orbit is perforated. The treatment of these tumors consists either in extirpation of the growth, in partial resection, or in total resection of the superior maxilla.

Tumors of the Naso-pharynx.—Fibroid tumors of the pterygo-palatine fossa may enter the orbit through the infra-orbital fissure. They cause neuralgia of the infra-orbital or posterior alveolar nerves. The orbital portion of the tumor may divide into two branches, one involving the eyeball and the other extending into the cranial cavity, through the supra-orbital fissure. These tumors eventually extend into all the neighboring cavities.

CONCLUSIONS.

Tumors of the Sphenoid.—So long as a pathological process, whether it be inflammatory or a new growth, is limited to the antrum of the sphenoid, the subjective symptoms are either entirely absent or there may be severe pain in the head. If the process extends to the neighboring structures, symptoms arise which point to the probability that the sphenoid bone is the seat of the disease—such as blindness due to compression of one or both optic nerves, the visible or tangible presence of the growth in the naso-pharynx, ethmoid, orbit, or skull. The entrance of the growth into the cranial cavity may occur without any subjective symptoms, or there may be severe headache. If the progress of the growth is very rapid, meningitis or cerebral abscess will result. The ophthalmoscopic symptoms are either papillitis or atrophy of the optic nerves, due to perineuritis and pressure of the swollen nerve-sheath on the optic nerve-fibers. In some cases the pressure is exerted on the optic nerve in the optic canal. Tumors of the sphenoid antrum may perforate the middle fossa of the skull without causing blindness, and when blindness does occur in these cases, it is not necessarily due to pressure on the optic chiasm, for it may be unilateral. If an orbital tumor rapidly causes blindness, and the latter starts from the temporal side of the field and leaves the region of the macula lutea unaffected to the last, and if at the same time a growth appears in the naso-pharynx, it is probable that the tumor began in the sphenoid antrum.

Tumors of the Ethmoid.—A morbid growth confined within the ethmoid cells gives rise either to no symptoms at all or merely to headache. Inflammation of the mucous membrane lining the ethmoid cells may extend from the naso-pharynx, the frontal sinus, the maxillary antrum, or the orbit. The ethmoid cells may be turned into a single large cavity by a collection of mucus or pus within it. So long as a tumor is contained within the limits of the ethmoid cells there are either no subjective symptoms or there are paroxysmal headaches, with a feeling of heat and epistaxis. The orbital symptoms are the same as those of tumor of the orbit. The motility of the eyeball is limited. The vision may be only slightly affected, or there may be complete blindness. The visual field may not be affected. If the tumor has entered the naso-pharynx, the mouth is more or less open and the speech is nasal. Later there is loss of the sense of smell. If the ethmoid cells are opened into by the growth, there is more or less continuous dropping of cerebro-spinal fluid from the nose, owing to a communication between the upper wall or roof of the ethmoid cells and fissures at the base of the skull. There may also be orbital or palpebral emphysema, and hæmorrhage from the nostril on the same side.

Mucocele, or Abscess of the Frontal Sinus.—In chronic inflammatory disease of the frontal sinus there may or may not be supra-orbital pain. If the process is confined to the frontal sinus, there is no other symptom. If, in addition to the pain, there is sensitiveness on pressure over the frontal boss, swelling along the lower surface of the supra-orbital margin and along the inner wall of the orbit, and displacement of the eyeball downward and outward, it is probable that the disease has extended from the frontal sinus to the ethmoid cells. If, in addition to these symptoms, there are coryza, ozæna, and a purulent discharge from the nostril, the nasal meatus has become involved and the diagnosis is certain. But, unless all of these symptoms are present, the diagnosis is very difficult and almost impossible. If the first symptom of orbital complication is the appearance of a dense, hard swelling at the upper and inner angle of the orbit, along the superior orbital margin and region of the lacrymal bone, and if the growth is slow and painless, the disease is almost certainly an *osteoma* of the frontal bone, which will eventually involve the orbital plate of the ethmoid, and later the cavity of the skull.

Tumors of the Maxillary Antrum.—Tumors of the antrum may cause pain in the teeth or in the region of the infra-orbital nerve, but not until they have attained considerable size and have more or less completely filled the antrum, the distention of the walls of the cavity causing the pain by pressure on the nerve-twigs. Subsequently the diagnosis may be rendered easier, either by a projection forward of the anterior bony wall, or by dislocation of the eyeball upward and outward, or even upward and inward, by the protrusion of the floor of the orbit. Usually at this stage of the growth the tumor may also present in the nasal meatus, or pharynx, or both. In no case is it possible to diagnosticate a tumor of the antrum early in its development.

AUTO-MASSAGE.

THERAPEUTICS OF KNEADING, OR SLOW PROCESSES OF MASSAGE.

By GEORGE H. TAYLOR, M. D.

The vital organism is never motionless in its quietest moments. Its different parts and organs are constantly pervaded by spontaneous and unconscious wave-like motions. This is especially and conspicuously true of the contents of the trunk and pelvic cavities—the visceral organs. These motions inhere in the mechanical structures which dominate the parts referred to; and so important are they to the welfare of the vital organism that Nature has rendered them mostly independent of the intelligence, will, and the senses, which are notoriously liable to err.

As the motions to be described are intimately associated with mechanical structures whose functions are maintained by other causes than those emanating from the reflective powers, they may properly be called *auto-motions;* and since they may be shown to bear a close resemblance in form to the *imparted* motions known as massage; in being reciprocating or wave-like and susceptible of variations of *degree* and of *rate*, there is much propriety in classifying the differing grades and varieties of spontaneous motions found in the vital organism under the common designation of *auto-massage*.

Auto-massage belongs decidedly to the *slow* variety of massage processes—that is, its rates of motion are at and below those which the hand of an operator can naturally and easily execute. This is seen when it is further said that auto-massage appertains particularly to the *visceral* organs—the contents of the cavity of the trunk. Although some of the auto-motions have their source in the general muscular system and others in special motor mechanisms, yet the motions thus evolved appear to inure to the advantage of the organs contained in the cavities mentioned. This shows that the purposes of auto-massage are essentially the promotion of *nutritive* processes, of which the before-mentioned parts are the source and seat.

The contents of the cavities of the body are soft, yielding, and have a slippery exterior, and are therefore perfectly adapted to be moved upon and among each other, and to yield to the slightest mechanical impulses derived from exterior sources or generated in their own tissues.

Whatever the cause or the origin, all such motions necessarily have the qualities of *pressure* and *rate*, thus further justifying the designation of massage. We may now pass in review these several auto-motions, and note separately their source, rates, purposes, and distinguishing characteristics.

Bodily Motions.—The ordinary activities of the average individual, whatever their purpose, necessitate the *bending*, *twisting*, and unending combinations of these movements of the trunk for exterior purposes. All such trunk movements produce mechanical effects—that is, expend motor energy among the visceral contents. Some degree of compression, mild or severe, with displacement of organs, inevitably result. Similar mechanical consequences might be noted were a bag, of similar size and shape, compactly filled with loose objects, as balls, subjected to similar combinations of bendings and twistings. The contained objects would be displaced; they would be subjected to alternations of pressure; the great extent of surfaces would glide or scrape against each other; and, if composed of rubber, the elastic property would be fully brought into exercise, with its special result of heat development.

The gravitation—that is, weight—of the visceral mass causes far greater pressure at its inferior than its superior portions. Whether this difference of pressure be beneficial or prejudicial depends on circumstances which it is highly important for the therapeutist to weigh carefully. Difference of pressure is a factor of great significance and is easily turned to the highest therapeutic account.

In the present case a sharp bending of the trunk, say to the *right*, mechanically necessitates diminished, perhaps entire relief of, pressure at the opposite, or *left* inferior, portion of the contents of the cavity. As regards the venous and lymphatic vessels, the act is one of suction, so called, and affords a direct and positive upward impulse to the contents of these vessels, which effect is repeated as often as the same or similar motions recur. The usual motions of the body, whether simple or compound, therefore superinduce auto-massage of the contents of the trunk, the mechanical consequences of which are naturally increased by the greater gravitation at its inferior part; the physiological effect of this form of auto-massage is the onward and upward movement of the fluids of the pelvis and abdomen and the outflow of interstitial juices. Such outflow is an indispensable preliminary to arterial inflow and to the renewal of local nutrition; the intercapillary spaces are drained of whatever contents they may have into the portal and lymphatic vessels. Auto-massage superinduced by trunk motions has no special rate; it may, under full occupation in health, average ten per minute.

Rhythmic Motions of Respiration.—If an animal at rest be carefully inspected, it will be seen that the respiratory movement includes the abdominal wall, and that the inferior wall of the chest and the anterior of the abdomen act synchronously. The whole mass of the digestive organs is located between these boundaries, and is consequently subjected to the oscillating motions of the respiratory acts and participates in its variations of *rate* and *degree.* Since this motion in the human species is approximately perpendicular, it follows that it is attended by differences of gravitation, the difference being greatest when gravitation becomes greatest by reason of location; the upward part of the act removes pressure, while the downward part restores pressure to the lower portion of the visceral mass. Whatever circumstance may cause *deepening* of the respiratory act, extends the effort to the visceral contents in the form of increased difference of pressure; in other words, increased degree of the auto-massage of the abdominal and pelvic viscera. Respiratory auto-massage evidently includes all the hollow organs of the viscera—the stomach and the digestive canal to its inferior termination. It subjects their contents to the motions which tend to urge them on in their course of contact with the interior surfaces of the canal. It causes the exterior surfaces of the different segments to glide upon each other. The secreting glands which line the walls are subjected to the same constant rhythmic changes of pressure, mechanically facilitating the discharge of secretions. The same oscillations of pressure impel the contents of absorbent vessels, and are a most important consideration in accounting for the acts of absorption. The same rhythmic changes of pressure applied to the venous and lymphatic circulatory vessels manifestly exercise a controlling influence in the movements of the contents of these vessels, an influence which experience shows can not even be partly dispensed with without serious damage to health. It is not only the chief agent for the transfer of the products of digestion to the blood-vessels, and the support of the system at large, but it is the efficient agent for maintaining the health of the inferior organs—those of the pelvis—by insuring their full and constant drainage under all adverse circumstances. The *rate* of this leading and constant form of auto-massage is fifteen to twenty per minute.

Locomotion.—If the top of the head of a person progressing over a level surface is observed, it will be seen to make a series of perpendicular oscillations, to the extent of from one to three inches, according to his rate of progress. The motion is superinduced by the *spring* he communicates to his body by the exertion of the muscles of feet and legs.

In this act the contents of the cavity of the trunk necessarily participate in the form of *auto-motion*, in which variations in gravitating force are produced, affecting the mass in general, and the contents of the vessels in particular, since all variations of vascular pressure indicate movement of vascular contents in the direction of least resistance.

If *ascent* is made in locomotion, as up stairs or an acclivity, other factors are engaged in the act. Muscular energy to lift the body, far greater than that required to impel it over a level surface, is now added. This demand for voluntary motor energy requires more blood and more air from which oxygen is taken; these are supplied to the muscles through proportionate increase of both respiratory and locomotive auto-massage. The *degree* or force of the auto-motion increases first, afterward the *rate*, and both factors become conspicuous throughout the viscera. These obvious facts are conclusive evidence that the slow or kneading form of massage, whether supplied from exterior causes or automatic, is indissolubly associated with nutrition and is directly tributary thereto. The *rate* of locomotive massage is about the same as that of manual massage, being controlled by gravitation. The interesting fact should be noted that locomotion temporarily hastened by the will increases its *degree*—that is, deepens its extent more than its rate.

The Circulatory System of Auto-motions.—The heart and arteries are a very conspicuous field of auto-massage. The energy represented in motions of these vascular walls does not, however, extend into surrounding tissues, but is expended chiefly within the walls of the vessels, in the form of continued or untransformed motion, and in chemical changes, for which the *rate*, being quicker than the other forms of auto-massage, renders it adapted, so that depurative effects become possible, even within the blood-vessels.

The Vermicular Motory Function of the Digestive Organs.—This form of auto-massage has, unfortunately, monopolized the attention which should have been distributed impartially among all the varieties above described. The consequence is, that faults are ascribed to the digestive canal which in reality belong somewhere else; that defects of its special movements are sought to be remedied by medicinal impressions of its interior, which are due from other sources. The natural and wholesome incitants of digestive organs arise exteriorly. The vermicular motion requires the mechanical impressions naturally supplied by the combined auto-motory processes, which have been described, as its incitant. The substitution of drugs whose influence is confined mainly to the digestive tract practically withdraws the normal incitant. The consequence, as all who have much experience know, is that the power of the several forms of auto-massage declines, and the digestive tube and appendages no longer receive due motory incitation of auto-massage; the interior or drug incitation is substituted.

The reasonableness of dependence of the vermicular upon the other forms of auto-massage is shown by the following physiological considerations: Digestion, and the consequent discharge of digestive residuals, is naturally proportioned to, and largely dependent on, muscular expenditures, of which auto-massage constitutes no small share. The occasion or necessity for vermicular action, therefore, only exceptionally arises from interior incitation, but from that afforded exterior to the organs in which it is developed. The vermicular function is thus superinduced by its purposes.

When, therefore, this action is superinduced by drugs, the nutritive purpose suffers defeat, for ingredients destined for the support of vital powers are by this means consigned to the category of useless residuals and lost, to the obvious detriment of the auto-functions from which normal incitation of vermicular massage is due.

The due maintenance of the auto-muscular functions of the digestive apparatus is highly important, as is shown by the following considerations: The discharge from the organism of residuals of digestion is a comparatively subordinate purpose of its auto-motions, inasmuch as its *quantity* is far inferior to that absorbed. Absorption is therefore the greater purpose, and this is defeated by drug incitation of the auto-motion, but secured by natural or massage incitation.

Other purposes of vermicular action arising from its legitimate incitants—the mechanical aid to the secretions, especially from the pancreas and liver; mechanical assistance for local venous and lymphatic vessels, and the due maintenance of the nutrition of the muscular coats of the digestive apparatus, which is secured only by their proper, not by forced, exercise—are apparent.

It is important to note that the vermicular function of the digestive canal responds only to *slow* mechanical impressions, and not to those of rapid rates. The normal incitants pointed out have conspicuously slow rates of motion; quicker motions are therefore incapable of merging with these to re-enforce their power to control the vermicular act. Although the transmission of massage to the visceral organs of rapid rate is frequently indicated by the nature of the disease requiring this form of remedy, yet in this case the vermicular function is restrained and not increased by motory processes exceeding the rate of normal auto-massage.

The considerations above presented show that structure and function are conjoined in the organism to render indispensable certain slow auto-motory processes; that these are normally communicated in the form of deep waves through the visceral organs; that these have adequate motory sources, independent of the influence of the will; and that the physiological necessity for this class of activities is asserted by the multiple provision within the organism for securing the same.

In considering the proposition to supply by art the defects of natural or auto-massage, it is essential that the characteristics of the latter be particularly noted, for therapeutic success must depend on compliance with the demands indicated by the auto-process.

The special field of auto-motions is evidently comprised within the cavity of the trunk, or cavities, if the pelvic be regarded as mechanically distinct from the abdominal.

The *rates* of the auto-processes extend from that of the limbs (governed by gravitation) to those indicated by the single numerals per minute, rates which can not be effectively maintained by manual methods.

The *degree*, depth, or force of auto-massage is sufficient to include the whole visceral mass.

The *scope* includes visceral organs and excludes the surface, and, indeed, all parts highly endowed with sensory nerves.

The *mode of action* of auto-processes of massage is the production of differences of pressure in different portions of the visceral mass and the vessels therewith connected.

The *effect* or consequence of differences of compression of different parts, including both solids and fluids of the viscera, is to urge whatever is subjected thereto in the direction of the less pressure.

The *direction* in which this auto-motory cause acts as a whole is *vertically* in opposition to gravitation.

The differences of pressure also cause *gliding* of distinct organs and parts upon each other in obedience to variations of pressure.

The direct mechanical consequences are complete drainage of the visceral mass of all superfluous fluids and the rendering of local stasis and its morbid effects impossible.

The same mechanical cause also obviates undue and prolonged contact of organs and parts of organs with each other, and of viscera with the containing abdominal walls, and of inferior loops of digestive viscera with those of the pelvis.

The *therapeutic consequences* of the above-stated mechanical effects of auto-massage, and of *any* massage which approximates it in form, rate, and degree, can not be overestimated, for thereby is solved its most difficult problems; for not only is the origin of a variety of morbid manifestations clearly demonstrable, but the way is suggested for not only obviating the maladies, medical and surgical, which depend thereon, but also of extending the scope of such means to include the well-developed morbid consequences.

The above-stated fundamental principles are confirmed by comparative physiology. The visceral organs of four-footed creatures are mechanically poised between anterior and posterior supports, and thereby subjected to the extreme mechanical effects of the motion of the limbs in all their varieties of pace. The consequence is auto-massage of viscera more constant and far exceeding that possible in the human subject. There is perpendicular oscillation of great weight, sectional compression, pressure-gliding, and rubbing from unequal displacement of organs; great extremes in degree, though uniformly slow rates of auto-motion, and almost entire immunity from the digestive and pelvic ills to which the human species is notoriously subject.

This illustration is an object lesson in physiology, establishing an indisputable point of ætiology, for faults of motion, which is really function, when prolonged, develop consequences in the tissues entitled to special designations, defining local and sensorial characteristics.

It hence appears that the conversion of a pathological condition into the physiological consists essentially in *restoring function*—that is, in re-establishing in full force the agency by which health is maintained. In case of chronic suffering of the visceral organs, slow auto-motions are the fundamental factor of their functions, and means are to be sought which serve to raise these to their normal degree.

The *causes* of the decline of the auto-motory functions have in part been shown, but for clearness may be restated. The fundamental cause lies in physiological habits unconsciously faulty; for it is hardly supposable that rational beings will deliberately and consciously cause their powers, and therefore the sum of their enjoyments, to diminish. The advantages of civilization are thus far accompanied by serious disadvantages and drawbacks arising from misdirection and perversion of the senses, the subordination of the judgment to this faulty influence, and the increase of these defects through heredity.

While the vocations of large numbers afford sufficient, often an excess of exercise, this is liable to be partial and physiologically misdirected; and such persons suffer from disorders of visceral parts scarcely less than those whose exercises are insufficient. In both cases the trunk-motions react on the viscera with insufficient mechanical force, and there is consequent marked immobility of the intestinal convolutions and stasis of the visceral circulation. An intestinal fold or knuckle impinges with continuous instead of the natural interrupted pressure against some point at the lower border of the abdomen, thinning its walls and causing protrusion at the slightest provocation, or it intrudes upon the sacred rights of the female generative intestine, insinuating behind this, before that, between other parts, urging them aside and dislocating the parts. The same immobility prevents the full return of the circulating fluids for aeration, re-enrichment of ingredients and redistribution, stagnating vascular pockets remaining in parts least subjected to auto-massage and ripening into local disease.

These statements bring into relief two distinct conceptions of the nature of chronic affections of the visceral organs. These may be distinguished as the *nosological* and the *ætiological* conceptions. The nosological has its basis in variability of manifestation. It emphasizes the common, distinctly defined morbid appearances, notes the results of exploration, and lays special stress on the disagreeable sensations—*consequences* of defective functioning. Any point from stomach to rectum may serve as a locality; the specific manifestation may be any secreting process from the liver to the minutest follicle; and hyperæmia and consequent tissue change, and hyperplasia and degradation of interstitial ingredients, morbid discharges, abscesses, ulcerations, and pain, become objective purposes for medical combat.

The *ætiological* conception fully appreciates these and a multitude of other objective features of disease, but it regards them as products in a state of incompleteness. They are evidences of inadequate functioning, and are rendered impossible in proportion as functioning approaches completeness. The physical energies of the organism fundamental to functioning processes are ill-developed and misapplied.

The therapeutic purposes under these different conceptions of pathology also differ radically. In the one case remedial measures are adjusted to the apparent local requirement, to suspend pain, to relieve local hyperæmia, to oppose mechanical dislocation of parts by direct local mechanical obstruction, and to give vent to confined fluids.

The other mode of considering the pathology leads to supplying the lacking physical energy in kind, rate, and degree, approximating as nearly as possible those which naturally appertain to the suffering viscera. This class of measures are not substitutes for auto-massage, but serve to cultivate the non-sensory powers of the visceral organs and of the mechanism intimately related to visceral functions. In this way a permanent increase of their spontaneity of action is secured. The correctness and therapeutic value of this statement invite the most rigid and critical tests. These are afforded by simply supplying massage of the *slow* and *deep* variety to the suffering viscera. This recourse is commended by being normal to the tissues and organs, and no higher or more cogent justification is conceivable.

The adjustment of massage to visceral organs requires conformity to anatomical as well as physiological peculiarities. The supplied process should, as nearly as possible, resemble the auto-process in the particulars of *rate*, *degree*, *location*, *position* of body, and whatever circumstances conduce to natural or physiological effects.

Slow massage of visceral organs is popularly known by the term *kneading*, from its resemblance to that well-understood practice, and it will be more convenient to use this term in describing the details necessary in the process. The nature of the adjustments required to comply with therapeutic purposes has been, in the main, indicated, but may here be recapitulated:

The *rate* at which abdominal kneading best complies with therapeutic requirements is found by experience to be about twenty-five impulsions or wave-motions a minute. This rate, it will be noted, is about the average of the different motions propagated through the viscera in health, proceeding from the respiratory mechanism, from bodily motions, from locomotion, and other motory stimuli which co-operate to impress the digestive and the pelvic systems of organs as masses of substance pervaded by fluids having a predestined onflow. It is necessary here to state what will subsequently be explained in detail, that quick or vibratory motions can not practically be substituted for the slow variety when the effects of the latter are desired, since the former exercise control of another department of nutritive processes at variance with the purposes of kneading.

The *degree* or force of the transmitted motor impressions should be sufficient to include the whole visceral mass in the motory wave. This mass is largely continuous anatomically, and the motory impulsion should extend to all parts of the portal vein and its branches and to the whole visceral lymphatic system. Interstitial absorption of all fluids of whatever character and their submission to the chemistry of the organism is the direct consequence. Superficial motory impressions are useless for this purpose, and are in other ways possibly injurious.

The posture of the patient during the kneading process should be that of *lying face downward*, so that the mechanical impulse shall be from beneath the visceral mass. The reasons for this position may be readily understood. Nature enforces the action in this position throughout the world of inferior animals—an evidence that the desired effects are thus best secured. The backward-lying position is excluded because pressure of the abdomen in this position forces its contents toward the pelvic end of the cavity, producing mechanical effects it is desirabe to remove, obstructing the flow of the venous and lymphatic vessels, impacting the organs, preventing their natural intermobility, wedging the intestinal folds against the lower part of the abdominal wall, and insinuating them among the pelvic contents, narrowing and mechanically obstructing the alimentary canals. These consequences are aggravations of pre-existing difficulties for which remedies are sought.

Exactly opposite effects flow from kneading the abdomen in a reversed posture—that is, face downward—as is clearly shown by the aid of the illustrations and descriptions following.

The *posture* of the body required for effective kneading renders its manual application impracticable. Not only is the *rate* of auto-massage which requires to be re-enforced too slow to become merged with manual rates, but the abdomen of the patient in the required position is practically inaccessible for a manual process; besides, the *time* during which the process should be continued at each *séance* is longer than meets the approval of the manual operator. The *patient* is the sole judge of the agreeable and the disagreeable in the process, and is therefore solely competent to adjust the process to his feelings. This principle excludes the manual method, controlled at haphazard or by some pet theory of the masseur.

Apparatus for Kneading.—Three forms of apparatus may now be described, which are constructed with the purpose of complying with the requirements for the therapeutic efficacy of the process. That shown at Fig. 1 may be called the *direct* kneader. The patient lies at full length, face downward, upon it, exposing the abdomen through a broad opening in the upholstered top to the action of the mechanism. The purpose is to give slow vertical, oscillating motion to the visceral mass. This is effected by the alternate impingement of two broad kneading heads, acting at right angles to the abdominal exterior at its two sides. By means of a suitable lever and ratchet the patient regulates the degree of the impingement so as to make it agreeable to his feelings. By slightly turning and moving his body he also instinctively still further secures adjustment. This apparatus is particularly efficacious in cultivating the vermicular auto-motor functions of the digestive canal in all its parts.

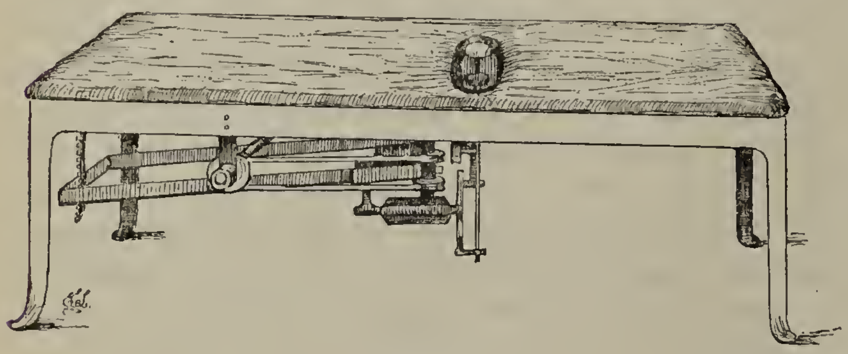
FIG. 1.

Fig. 2 shows the revolving form of kneading apparatus. The couch, with a wide opening at its central portion, amply upholstered, on which the patient may comfortably lie, face downward, resembles that shown at Fig. 1. The impinging part consists of two thick rollers, whose axes are at the ends of an arm extending through a revolving shaft, to which the rollers are eccentric.

At each revolution of the shaft these rollers engage the soft overlying abdomen, and urge the mass upward and forward, the two rollers acting alternately at its two sides. The practical effect of the process is to shift the abdominal mass from the lower to the upper part of the abdominal cavity, and not only to remove abdominal pressure from the contents of the pelvic cavity, but even to cause these to recede as far as their attachments will allow.

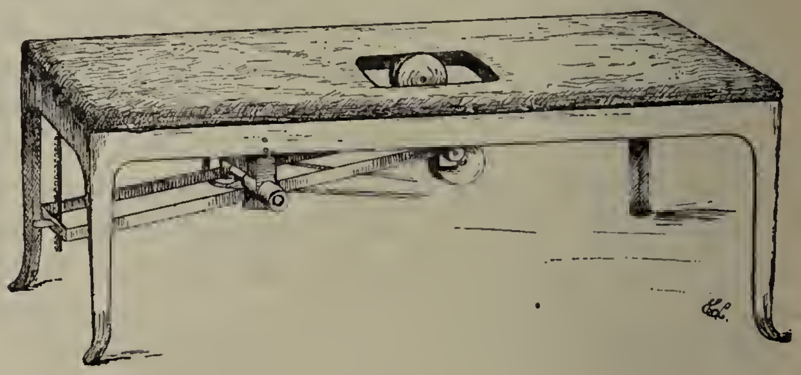
FIG. 2.

Fig. 3 shows the *rotating* kneader, which supplies conveniences for the application of the process identical with those before described. In this case a single ball or sphere is made to revolve horizontally in contact with the abdomen, its track being approximately over the course of the large intestine and in the direction of the natural course of its contents. The mechanical effect also extends to the whole mass of abdominal viscera, particularly affecting those parts usually regarded most at fault in case of constipation.

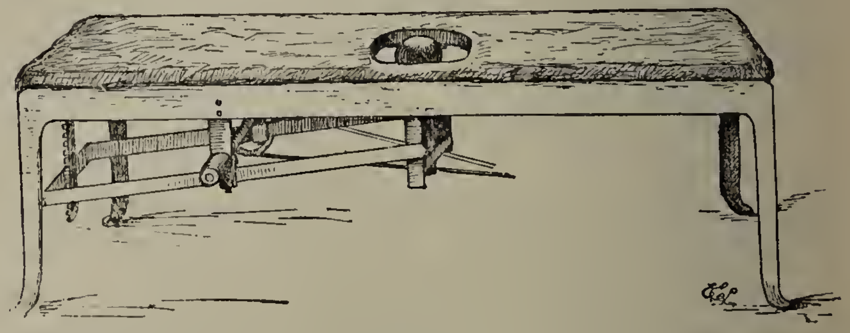
FIG. 3.

The advantages derivable from the mechanism above shown may be briefly recapitulated:

The position of the trunk and the unsupported abdomen conjoin in causing the contents of the whole cavity, including those of the pelvis, to *recede* from their location and rise to a higher point in the cavity.

This position compels the patient's arms to be extended laterally and upward; the muscular connection subjects the upper portion of the cavity to the widest possible distention, and thus provides space into which the abdominal mass passes.

The impingement of the acting part of the apparatus narrows the lower part of the abdominal space, and urges the mass *from* the pelvis.

The apparatus shown at Fig. 2 causes *positive*, *forcible traction* from the pelvis, without in the least impinging upon any part of its contents. The transfer upward of the abdominal contents causes those of the pelvis to recede in the same direction, to fill the space that otherwise would become vacant, aided by atmospheric pressure; in this way all causes of dislocation are removed, even though adhesions from previous inflammation have long existed.

The above-shown kneading processes act through the abdominal wall, as one's hand might afford a similar impulsion to the loose contents of a bag.

It is plain that all the muscles of the abdominal wall are, by the kneading process, subjected to means best adapted to promote their nutrition, development, and resumption of their natural agency in the auto-massage of the visceral mass. The most constant and satisfactory evidence of health is this auto-function; the most constant concomitant of ill-health are its defects, for these conduce, whenever long continued, to abdominal (digestive) and to pelvic manifestations of disease.

ASPIRATION, FROM THE PATIENT'S STANDPOINT.

By WALTER BENSEL, M. D.

Shortly after the blizzard of a few years ago I contracted a pleurisy, with effusion, from exposure during the storm. The effusion became so large and caused such considerable dyspnœa, dysphagia, and displacement of the heart that it was deemed advisable to aspirate and withdraw some of the fluid. The first needle that was introduced was a small hypodermic-syringe needle, simply for diagnostic purposes. The only thing that I observed at this time was that the pain was much more considerable than I had supposed it would be. Soon afterward another, larger-sized needle was introduced to remove the fluid, and then I noticed that there were two distinct sensations of pain, equal in intensity, but different in character, one as the point of the needle passed through the skin, and the other just before the fluid was reached. The second was precisely the same as the "stitch in the side" felt with a dry pleurisy. A reaccumulation of serum occurring in a few days, a needle was again introduced. Only a small amount of fluid was removed before the lumen became obstructed in some way, and the needle was withdrawn and reintroduced in another situation. A few minutes before each of these two aspirations, a four-per-cent. solution of cocaine was injected hypodermically, so that no pain was felt as the needle passed through the skin. The same degree of pain occurred as before, however, when the needle passed through the pleura. These facts would seem to indicate that the pleura possesses nearly, if not quite, as great sensibility as the skin itself.

Sloane Maternity Hospital, *December 16, 1891.*

Hydrogen Peroxide as an Antidote to Prussic Acid.—"In the cases of prussic-acid poisoning, Kobert, at the Congress of Naturalists, recommended washing out the stomach with a solution of hydrogen peroxide, together with hypodermic injections of the same occasionally, until the odor of prussic acid has disappeared from the breath and dyspnœa and convulsions have ceased."—*Druggists' Circular and Chemical Gazette.*

A New Remedy in Tuberculosis.—"Since Dr. Bokenham published the result of his experiments with the root of *Inula helena* and its products in tuberculosis, a well-known medical man of this city has a case under trial with the remedy. A preparation of the root has been prepared by a local pharmacist for the purpose. The result of the treatment is being looked forward to with great interest."—*British and Colonial Druggist.*

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EPIDEMIC PEMPHIGUS NEONATORUM.

Dr. Ernest Almquist, of Göteborg, Sweden, has given in the *Zeitschrift für Hygiene* (quoted in *Public Health*, October, 1891) the results of a bacteriological study of pemphigus of the new-born, occurring epidemically, at the lying-in hospital of the city above named. He reports that he has isolated and cultivated a micrococcus which appears to fill the rôle of the true pathogenic germ of this disease. During this epidemic, extending over several weeks, he had an opportunity of conducting a careful examination of the pemphigus blebs of nine children, with the result of finding the same bacterium in all these cases in notable numbers. This bacterium is a micrococcus which grows well at ordinary temperatures in the ordinary culture media. The pure culture of these bacteria was used by him to inoculate himself, with the result of producing on his own arm a true pemphigus which yielded the same bacteria in great numbers. The incubation period was very short, the blebs being fully developed within from twenty-four to thirty-six hours. The eruption was superficial, not penetrating into the cutis vera, and healed quite rapidly without the formation of a scar. No pain or discomfort was produced at the seat of the eruption beyond a moderate amount of sensation as of heat on the surface. The "*Micrococcus pemphigi neonatorum*" has considerable similarity to the *Staphylococcus pyogenes aureus*, but the two forms manifest distinctive divergences, both on inoculation and on culture. Furthermore, their non-identity is decidedly indicated pathologically. During the epidemic the course of the pemphigus was normal, and the women and children rarely had any accidents referable to pus formation; parametritis was rare and no puerperal fever occurred. Furthermore, the progress of the disease was mild and it left no chronic symptoms or sequels. Two mothers, who while nursing affected infants became infected, had a pemphigus mammæ, but no form of suppuration of the gland or the nipple. The health of the mothers and children in the hospital was particularly good during the epidemic period, and only two instances were noted where an infant had small abscesses on the skin. No bacteria were found in the blood.

The duration of the epidemic was not quite four months. During that time the number of infants having pemphigus was one hundred and thirty-four out of two hundred and sixteen born, or sixty-two per cent. None of these died in hospital, although some may have died outside, since for a variety of reasons the mothers and infants were in many instances dismissed early, and the malady may not break out until the tenth day after birth. The average incubation period, supposing exposure to take place at the time of delivery, was between three and four days in one hundred and twenty-one cases which were specifically noted. Some of the children showed the eruption on the second day. In former epidemics deaths had been ascribed to pemphigus and to other diseases mistaken therefor.

The vitality of the micrococcus is remarkable; sterilized silk threads which were soaked in the culture fluid and then dried behaved even after several days entirely like a cultivation directly taken from the bleb contents. Cultures on gelatin were for three months capable of reproducing the micro-organism, and a dried thread of the series mentioned showed for six weeks or more living individuals in large numbers. Clinically and epidemically, also, this disease has shown a singular persistence. In this epidemic, and in two or more that have been observed in Germany, the disease remained actively infectious in the practice of the same midwife for months and even after considerable periods of withdrawal from practice. This seems to harmonize with the tenacity of life in the micrococcus and with the numbers that infest the skin and crusts of affected infants. The chief reason why the new-born infant suffers more than the adult is perhaps the fact that the integument is thinner. The thick skin of older persons probably shields them; mothers nursing infected infants are measurably an exception, but they are commonly the subjects of direct inoculation upon the delicate mammary integument.

Demme, of Wiesbaden, in 1886 discovered a micrococcus which, unlike Almquist's, could be found in the blood during the time of febrile activity. Strelitz, in 1889, reported the finding of a pathogenic coccus of different appearance from Demme's, in a single case of pemphigus.

If we took into consideration the comparative rarity of recorded epidemics of this affection, we should be led to expect that its germ would exhibit a low vitality and small powers of propagation, which are not the properties of the bacterium discovered by Almquist.

ABDOMINAL ECTOPIA OF THE TESTICLE.

Dr. O. Guelliot describes in the *Revue de chirurgie* an unusual condition and a remarkable operation. The patient, a boy fifteen years old, was unable to work, on account of pain, especially in the left inguinal region. Examination showed the scrotum undeveloped and unoccupied by the testicles, and these organs were not to be found in the inguinal tracts. Above the crural arch, and extending from the pubes to a point just above the anterior superior spine of the ilium, there was a depression upon either side, into which the fingers could be pressed easily. Palpation at these points gave the impression of a deficiency of the deeper layers of the abdominal wall—in fact, the wall seemed to consist of the skin and a thin aponeurotic layer only. Through this the testicles could be made out. The right one was floating free in the abdominal cavity, and susceptible of being brought into the mouth of the inguinal canal; the left one was less movable, and was prolapsed with a true hernia through the rudimentary external abdominal ring, which was below the depression above described. Thus in one individual there existed double eventration through the fissure made by the absence of the deeper layers of the abdominal wall, double abdominal ectopic testis, or rolling of the testicle back into the abdomen, and direct inguinal hernia on one side. Mechanical appliances failing to make the patient comfortable, surgical intervention was undertaken by Dr. Guelliot. The abdomen was opened over the depressed area upon the left side, and the testicle found to be contained in a prolongation of peritonæum, shaped like a Phrygian bonnet and prolapsed into the hernial sac. Upon being drawn up, and the sac containing it straightened out, the testicle could easily be brought to the entrance of the inguinal canal, or rather to where that canal should have been. A canal was formed by stretching the tissues apart, and a strong loop of silk was passed through the scrotum, and then through this canal, and attached to the testicle. It was then firmly and steadily drawn upon, while the testicle was pushed upon from above, until it passed through the artificial canal into the scrotum. Here it was fixed by sutures running through its peritoneal covering. The rest of the operation consisted in a radical cure for the hernia and eventration. The result was that, while not perfect in retaining the testicle low in the scrotum, the operation relieved the patient's pain, cured the hernia and eventration, and made the boy able to earn a livelihood. This is a bold adventure in the growing field of genito-urinary surgery, and is a form of orchiopexy hitherto undescribed. Dr. Guelliot has reason to congratulate himself on the excellent result.

MINOR PARAGRAPHS.

NON-TRAUMATIC TETANUS.

The *Centralblatt für klinische Medicin* for November 14th contains some interesting data by L. Frankl-Hochwart in regard to this disease. He finds that it is most prevalent in March and rarest in September. Out of 360 cases, 318 were in men and only 42 in women. Of the men, 141 were shoemakers, 72 tailors, and 22 carpenters. In most instances the tetanus attacked persons of previous good health, but suffering at the time from some acute infectious disease, from poisoning with some drug, or from uræmia. In some of the cases the attacks came on after extirpation of lymphatic glands in strumous patients. The author is convinced from observation upon animals from which lymphatic glands have been removed that the phenomenon described by Trousseau is produced by nerve irritation and not by vascular compression, as he has found the electrical excitability very much increased in these cases. The prognosis of non-traumatic tetanus in young, healthy individuals is good, provided there is no relapse. In that arising from some toxic influence or from infectious disease it is also favorable. Tetanus occurring during pregnancy, the puerperal period, or lactation is usually grave. The treatment is to be directed to any cause that may exist; if the disease is idiopathic, morphine and chloral hydrate should be given promptly.

THE HARVARD MEDICAL SCHOOL ASSOCIATION.

The report of the first annual meeting, held in Boston, on June 23, 1891, forms the contents of the first number of a new publication, entitled the *Bulletin of the Harvard Medical School Association*. On the adjournment of the meeting there was a dinner, and the president, Dr. James R. Chadwick, of Boston, delivered an exceedingly interesting address on the advantages and disadvantages of a university connection for medical schools. All graduates of the school who have not received the *Bulletin* are requested by the secretary, Dr. Robert W. Lovett, No. 379 Boylston Street, Boston, to send their names to him.

WEIL'S DISEASE.

Dr. Ricoardo Pari (*Revista veneta delle scienze mediche*) decides, from his researches, that this disease is certainly an infectious parenchymatous hepatitis. The clinical course is distinctly of the typhous or typhoid type, and the focus of the disease is constantly found in the liver. Very little knowledge can be gained from literature in regard to its ætiology and pathology, but the author finds from his personal observation that there is always a history of infection. The prognosis must necessarily be guarded, on account of the obscurity of the cause and the hitherto unfavorable course of the disease.

HELMINTHIASIS IN CHILDREN.

From a long and extensive observation of cases, Langer (*Prager medicinische Wochenschrift*, No. 61) makes the following deductions in regard to the frequency of the various intestinal parasites in children. Of those suffering with helminthiasis in general the largest percentage were country-bred children. The parasite most frequently found in this class was the *Ascaris lumbricoides*, next in order the *Trichocephalus dispar*, and very rarely the *Oxyuris vermicularis*. The parasite peculiar to the city-bred child was the *Oxyuris vermicularis*.

THE PATHOLOGICAL LABORATORY OF COLUMBIA COLLEGE SCHOOL OF MEDICINE.

A valuable brochure entitled *Studies from the Pathological Laboratory of the College of Physicians and Surgeons, Columbia College*, has just been issued. It is made up of reprints of articles, published in various medical journals during the years 1890 and 1891, that were wholly or partly prepared by gentlemen connected with the laboratory. As the articles have not been reset, the typography is necessarily varied; nevertheless, the general appearance of the book is not unpleasant.

ITEMS, ETC.

The Duparcque Prize.—The *Gazette des hôpitaux* announces that this prize for 1893, amounting to 1,500 francs and a gold medal of the value of 100 francs, is offered by the *Société de médecine*, of Paris, for the best essay, written or printed, appearing during the year 1891 or 1892, on any subject connected with tuberculosis. Essays should be sent to the secretary, No. 3 rue de l'Abbaye, Paris, before December 31, 1892.

The Presbyterian Hospital.—A reception is to be held at the hospital this (Saturday) afternoon, from four to six o'clock, and this evening, from eight to ten o'clock, on the occasion of the opening of the new buildings.

The Baltimore Home for Incurables.—Dr. Robert T. Wilson has been appointed visiting physician to the institution.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 6 to December 12, 1891:*

Fisher, Walter W. R., Captain and Assistant Surgeon, is relieved from duty at Fort Assinniboine, Montana, and ordered to Fort Columbus, New York Harbor, for duty at that station.

Woodruff, Charles E., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Missoula, Montana, and ordered to Fort Assinniboine, Montana, for duty at that station.

Patzki, Julius H., Major and Surgeon, will, by direction of the President, report in person to the President of the Army Retiring Board, at Fort Leavenworth, Kansas, for examination by the board.

Taylor, Arthur W., Captain and Assistant Surgeon, having been found incapacitated for active service, is granted leave of absence until further orders, on account of disability.

Shillock, Paul, First Lieutenant and Assistant Surgeon, is granted leave of absence for fifteen days.

Hopkins, William E., Captain and Assistant Surgeon. His resignation has been accepted by the President, to take effect April 5, 1892, and he is granted leave of absence to include that date.

Middleton, Passmore, Major and Surgeon, having been found incapacitated for active service, by reason of disability incident to the service, is, by direction of the President, retired from active service.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending December 12, 1891:*

Morris, Lewis, Assistant Surgeon. Detached from Navy Yard, League Island, and ordered to the Receiving-ship St. Louis at that yard.

Harris, H. N. T., Assistant Surgeon. Detached from the Receiving-ship St. Louis and ordered to the Navy Yard, League Island, Pa.

Society Meetings for the Coming Week:

Monday, *December 21st:* New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *December 22d:* Buffalo Obstetrical Society; Medical Society of the County of Lewis (quarterly), N. Y.

Wednesday, *December 23d:* New York Surgical Society; New York Pathological Society; New York Academy of Medicine (Section in Laryngology and Rhinology; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Society of the County of Albany.

Thursday, *December 24th:* New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

Friday, *December 25th:* Yorkville Medical Association (private); New York Clinical Society (private); New York Society of German Physicians; Philadelphia Clinical Society; Philadelphia Laryngological Society.

Saturday, *December 26th:* New York Medical and Surgical Society (private).

Letters to the Editor.

SHALL SUCCESS IN THERAPEUTICS BE IMPERILED BY ETHICAL CONSIDERATIONS?

Kingston, N. Y., *November 6, 1891.*

To the Editor of the New York Medical Journal:

Sir: During the first few years of my practice I was a great stickler for the "code," especially of that section which declares it to be "derogatory to professional character and opposed to the interests of the profession for a physician to hold a patent for any surgical instrument or medicine, or to prescribe a secret nostrum, whether the invention or discovery or exclusive property of himself or others," but as the years rolled by I began seriously to question the consistency of this precept.

For the past ten years the market has been flooded with preparations put forth by enterprising manufacturing chemists for the relief and cure of various ailments met with in practice. Some of them are utterly worthless, while others have proved themselves to possess a certain value in appropriate cases. "Experience teaches," and experience is the supreme test in therapeutics. When it can be shown that a certain preparation, trade-marked or otherwise, is capable of affording relief more quickly or more surely than the routine treatment usually employed in a given disorder, it is our duty to give our patients the benefit of such remedies, codes to the contrary notwithstanding.

Pharmacy is an art no less than therapeutics, and while both are ranked among the sciences it must ever be remembered that art can do much without science, but that science is powerless without art. In these days of so-called specific medication, dosimetry, etc., complex prescriptions are looked upon with disfavor, and in some quarters are tabooed altogether. Now, while polypharmacy as formerly understood is to be discouraged and discountenanced, nevertheless the fact remains that certain preparations and formulæ, some of quite recent and others of remote origin, possess therapeutic properties unequaled by those of any remedies of their class. This no well-informed physician will have the temerity to deny, if he will take the pains to personally investigate their claims. Furthermore, no mere *ex cathedra* protest will suffice to prohibit their use by free thinkers in medicine. Certain combinations of drugs, as is well known, produce much more satisfactory results than where the same remedies are given singly. The explanation of this is not easy, but the fact remains. Paregoric furnishes a good illustration of my meaning; this preparation has come down to us from the past, and, like Dover's powder, has held its place to this day, and no more modern formulæ have been able to surpass or displace them. Take another example—the well-known Warburg's tincture. This is admitted by many of the ablest physicians of Europe to be the nearest approach to a specific for the pestilential fevers of India and the Gold Coast. It is true that the formula is secret no longer, but it was kept secret for years after it had been shown to possess its remarkable powers. Was it any less valuable then, when its composition was unknown to the profession, than it is now since its formula has been made public? There is still another feature that must not be lost sight of, and that is, What value attaches to the multiplicity of drugs and the special method employed in its preparation? Some will smile contemptuously at what they consider a mass of mediæval polypharmacy, and even refuse to make use of a remedy of this character. Those who have used this preparation, and I wish to include myself in the number, have found it of great value where quinine had utterly failed.

Another well-known preparation, the exact formula of which is carefully withheld, is McDade's elixir, or succus alterans. This article is a product of our own times and of one of our own countrymen. It has, moreover, the indorsement of J. Marion Sims. Some practitioners prescribe it, others do not; judged by the code, it would be ruled out.

Lactopeptine is a valuable, trustworthy remedy for the various purposes for which it is intended. It is indorsed by half of the college professors of the country, and by many other eminent practitioners. It is advertised in all the leading medical journals and prescribed by the profession generally, yet, according to a strict construction of the code, this is "derogatory to professional character, etc." Where, I ask, shall we draw the line? There are, at the lowest estimate, fifty preparations of the character alluded to now on the market, all of which are constantly advertised in our best journals. Some of these are fortunate in having the indorsement of men eminent in the profession, others are kindly referred to in some of the text-books, while others are considerately sent to us at regular intervals in the shape of samples. Are we justified in using preparations the composition of which is not made public—that is, the exact formula, and not the component parts merely, being given? And I want to say here that the alleged formulæ given for many preparations are fictitious and misleading, as no pharmacist, however expert, has ever been able to reproduce the original by following the formula strictly. This is notably the case with "bromidia"; while the ingredients are given, the method of combining them is kept secret, which practically amounts to the same thing, as it forces the prescriber to purchase of the one who holds the secret, since he can not successfully imitate it. But "this," it will be said, "is not so bad as a patent outright." "Let us draw the line at that." What, then, is to become of antipyrine, phenacetin, sulphonal, aristol, *et id omne genus?* Are these to be sacrificed upon the altar of ethics? I trow not. Look at the course pursued last winter in regard to "tuberculin" by the very elect among us. An absolutely secret preparation concerning which not the slightest information was vouchsafed, the effect of which upon the human system was practically unknown, and whose sole claim to favor was newspaper notoriety and the fact that Koch had manufactured it, but emphatically insisted that it was only in its experimental stage and not yet perfected. Yet, in the face of all this, what did we see? With a few notable exceptions, men lost their heads; college professors and clinical teachers vied with the quack and the charlatan in their mad scramble to first get possession of some of the miraculous "lymph." Berlin became a second Mecca; pilgrims in search of health and physicians greedy for pelf filled the German capital. But worse than all was the false and cruel hope engendered in the breasts of thousands in the land too weak, or sick, or poor to make so great a journey. The terrible sorrows and heartburnings of those who thought that they would be unable to profit by the great discovery of a consumption cure will never be known. They were real, however, and were felt in many a family, as we all had occasion to know. And yet, in spite of this example, and of so glaring a precedent, men will still be held to be unorthodox who venture to prescribe a secret remedy unless it happens to bear a German stamp and has an unintelligible name. The amount of information conveyed to the general practitioner by the statement that antipyrine is the arbitrary short title given to a new chemical compound of the aromatic series, the correct name of which is dimethyloxyquinizine, or that sulphonal is only short for diethylsulphondimethylmethane, is doubtless very great, but, as a matter of fact, there is not one physician in ten thousand, barring here and there an analytical chemist, that has the remotest idea of the real nature of these compounds.* They are all freely used, however, and prescribed by the most strict constructionist of the code.

There are some other nostrums, so called, not made in Germany, that in their particular sphere are quite as valuable and worthy of confidence as any of the modern chemical compounds with their lengthy and high-sounding names.

Castoria is a patent medicine so called, but it is a preparation that we should all be thankful for. We are given, nominally at least, its component parts—as much so as in the case of lactopeptine or bromocaffeine—and are thus not altogether in the dark as to its composition, as we certainly are in regard to the German chemicals; and yet there is a certain class of physicians who say "it is not orthodox to use it because it is a 'patent' medicine." As a matter of fact, a large majority of the physicians of this country do use it, notwithstanding the ban placed upon it by a few. Its active ingredient is undoubtedly senna, but its taste has been admirably covered by a most consummate blending of aromatics, the successful imitation of which has never been accomplished. The baby's palate has been catered to to that extent that no child has ever yet been known to refuse the second dose. Shall we deliberately refuse to sanction the use of so pleasant and efficient a remedy, and insist upon castor oil, or rhubarb and molasses, in the nursery for the sake of consistency and the code?

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* These German products are all patented, and their manufacture is protected by trade-mark as well.

It often happens that the process of manufacture of certain pharmaceutical preparations is kept secret, and no efforts on the part of expert analytical chemists are able to duplicate the article. McMunn's elixir of opium is a unique preparation. Those who are familiar with its effects are forced to admit that there is no official preparation of opium that has the objectionable and unpleasant effects of the crude drug so thoroughly eliminated. The deodorized tincture, when properly prepared, is an improvement on laudanum, but it is a very different article from McMunn's elixir. It seems that the combined wisdom and skill of that august body, the Committee on Revision of the United States Pharmacopœia, have never been able at any of its sessions to suggest a method by which opium could be deprived of its nauseating properties at all comparable to the one employed by McMunn.

"Henry's magnesia" has never been equaled. Horsford's acid phosphate has had numerous imitators, but all have failed. The same is to be said of Hayden's viburnum compound and bromocaffeine. Tarrant's seltzer aperient still stands alone as the favorite saline of its class, notwithstanding numerous substitutes for professional and popular favor. But why multiply the list, as I fear already that some will say that I have written a thinly concealed advertisement; but one rarely attempts to do quite so much at one time in that line. I have simply endeavored to show that a conscientious, honorable physician should not hesitate to make use of anything that promises to do his patient good if, after a fair trial, it has proved itself capable of so doing.

Clarence L. Dodge, M. D.

129 Clinton Avenue.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPÆDIC SURGERY.

Meeting of October 16, 1891.

Dr. Samuel Ketch in the Chair.

Fixation of the Dorsal Spine.—Dr. Royal Whitman presented a patient illustrating the application of a brace for the more perfect fixation of the spine in disease of the middle dorsal region. The appliance consisted of two saucer-shaped pads covering the prominence of the shoulders, connected by an unyielding steel bar passing across the chest; and two triangular hard-rubber pads covering the lower two thirds of the scapulæ, connected by a steel bar. The Taylor back brace was applied as usual, and the back bar attached to its upper portion. The shoulders were then pressed back to their full limit, the front pads placed in position and firmly attached to the brace by straps passing above to the neck bar, and through the axillæ, to the back pads which held the scapulæ against the thoracic wall. Motion of the spine was thus confined entirely to the neck. Although the necessary movements of the arms were not restricted, forward reaching movements, which were always accompanied by flexion of the dorsal spine, were entirely prevented. This principle, the restraint of certain movements of the arms which tended to increase the existing deformity, was the point to which he wished to call the attention of the society, as he was not aware that its importance had before been insisted on.

Dr. R. H. Sayre fully agreed with Dr. Whitman as to the necessity of keeping the shoulders back in this class of cases, but the difficulty hitherto had been to maintain such apparatus in proper position. In a paper which he had read at the recent meeting in Washington he had called attention to the fact that when the disease was situated high up in the dorsal region the plaster-of-Paris jacket did not give proper support, because it failed to hold the shoulders back, and that in such cases he was in the habit of employing pressure backward on the tips of the shoulders.

Dr. Newton M. Shaffer thought that the apparatus exhibited acted admirably in fixing the shoulders, but it was open to the grave objection that by exerting pressure on the scapular plates in this way the uprights were prevented from exerting the proper amount of pressure at the seat of the disease, and so the apparatus was not able to arrest the traumatism of respiration. He thought this was a defect inherent in the apparatus, and not, as Dr. Whitman believed, simply an accident, due to improper fitting of the brace to the patient's spine.

Dr. Whitman replied that he thought the apparatus exerted all the pressure that the skin would bear, and that, by slightly modifying the curve of the uprights, the defect noticed by Dr. Shaffer would disappear. His object in presenting the apparatus was to elicit a discussion on the question whether or not it was desirable in this particular class of cases to attempt to control the forward movement of the shoulders.

Bond's Operation for Talipes Valgus.—Dr. A. M. Phelps presented a young man whom he had been treating for a number of years for a very severe talipes valgus. Almost all methods had failed to give more than temporary relief, although in one instance there had been no relapse in the case for a whole year. The patient constantly wore a support for the arches during the time. He had sought for relief not so much on account of the deformity as because of the severe pain which he suffered, and which prevented him from standing on his feet; without shoes, he could hardly walk. His occupation was printing.

In conversation with Dr. Bond, of Westminster Hospital London, England, the speaker had learned of the operation which, in its author's hands, had been successful. The operation performed by Dr. Bond was for the purpose of relieving the pain, which it certainly did. He alluded to the operation as "firing," the same as was done for the relief of spavin in a horse. The operation consisted in making transverse incisions with a Paquelin cautery, beginning at the inner malleolus, and extending one third of the distance across the sole of the foot, cutting through the cellular tissue down to the muscles. About four of these incisions sufficed. Two semicircular incisions were made, crossing the transverse ones. It seemed to the speaker that if the arch of the foot, before the operation was performed, was well shoved up into place and held with plaster of Paris for a few weeks, the shortening of the tissues in the sole of the foot by cicatricial contraction would be more effectual, and would hold the arch in the normal position. The operation when applied in this manner for the purpose of shortening the girders of the arch of the foot was identical in principle with an operation which he had performed and reported to the American Orthopædic Association in 1889.

One objection which had been urged against the open incision method for talipes equinus was that the scar was quite likely to be sensitive, and it was interesting to note that in this case, the amount of the scarring being considerable, the patient walked upon the scarred tissues without any pain, and was able to work at his trade. The only support to the foot needed was an ordinary shoe slightly thickened on the inner side.

Dr. R. H. Sayre said that the amount of pain experienced in these cases of flat-foot bore no relation to the amount of deformity. This patient's foot was still turned outward, and, as in many other cases, when the foot was brought into the normal position, there was a very noticeable involuntary twitching of the peroneal muscles. The patient had been made comfortable once before for a period of a year, so that it was entirely too soon to say that the case would not relapse. As the arch of the foot was in large part maintained by the deeper structures, it seemed doubtful whether the scar tissue, which did not go beneath the muscles, would be sufficient to hold up the arch, although at present it did this very well.

Dr. A. B. Judson said that, in view of the well-known fact that cicatrices after burns contracted persistently and with great force, the operation was not only ingenious, but quite likely to prove successful.

Dr. Whitman thought the operation unscientific in principle. No case of flat-foot was cured until the important movement of adduction was perfectly free to its utmost limit. In the present instance adduction was not possible, and the case was only relieved, not cured. The only way to cure flat-foot was by increasing the power of the muscles which supported the weak portion of the foot.

Dr. T. Halsted Myers said that, as the pain in flat-foot was largely due to periostitis about the attachments of the ligaments involved and in the joint structures themselves, this operation with the Paquelin cautery might act beneficially by counter-irritation, just as it did in many cases of joint disease elsewhere. Relief from pressure during the healing of the wound was also an important factor in the cure.

The Chairman stated that if this procedure of Mr. Bond's gave permanent relief from pain, it would constitute a valuable accessory to our methods of relieving this troublesome symptom. In working people, in whom this deformity occurred most frequently, the question of a perfectly formed or perfectly acting foot was secondary. What patients wanted was, first, relief from pain; and, secondly, feet that would give them an opportunity to earn a livelihood.

Dr. Phelps said that the case was not presented as a cure for the deformity of hallux valgus, but that the flat feet seemed to be cured. He had never observed periostitis in cases of flat-foot, but he had frequently seen inflamed mediotarsal joints, the result of pressure, and even the growth of new bone about the joints, precisely as was seen in severe forms of lateral curvature. The scaphoid bone was really the keystone of the arch, and when it was dislocated downward by the lengthening of the tissues in the sole of the foot it caused great pressure. The patient would experience pain. This pressure, long continued, resulted in inflammation and growth of bone about the joint. He thought it more scientific to shorten the girders of the sole of the foot than to do an osteotomy.

A Case of Multiple Joint Disease.—Dr. R. H. Sayre presented a little boy who had had a strange combination of diseased joints without any rheumatic history. When about two years old the boy had had a severe attack of scarlet fever, which had been followed by an ischio-rectal abscess and a double otitis media, which still continued. About ten months after the attack of scarlet fever he had fallen, and shortly afterward the left knee had become swollen and tender. A splint had been applied, and the knee had soon appeared well. Shortly after this the right knee and the right hip joint had become successively inflamed. He had then been treated for about a year by traction, first in bed and afterward with a long traction hip splint. After this, the left knee, the right knee, and the left shoulder had become successively inflamed, and so severe had the inflammation been in the shoulder that at one time it had been almost completely ankylosed. In 1888, after an injury, the right knee and right hip had become swollen and tender, and it was at this time that the case had first come under his observation. After the flexion had been overcome a splint was applied, which produced traction on both the knee and hip joint. Photographs were exhibited showing the case with the splint applied. Last July it was considered safe to remove the splint. At present he had no pain; extension was good, and flexion could be made to a right angle. There was almost perfect motion at the hip joint. He had looked upon the joint lesions as probably tubercular, but it was possible they were metastatic.

Dr. H. L. Taylor did not believe the joint lesions were tubercular.

The Chairman also thought the whole clinical history pointed away from tubercular disease, and that the scarlet fever had probably given rise to a rheumatoid condition.

Dr. Phelps said the trouble was either rheumatic or metastatic, and, as the joints had not suppurated, the former was the more probable origin. While the application of the splint had probably assisted in bringing the case to so favorable a termination, it was quite likely that constitutional treatment alone would have been sufficient. He had been misquoted with reference to the occurrence of flexion at the hip joint. Where the *whole* number of cases had been reported, he believed the statistics would show that not five per cent. had recovered without angular deformity, yet he believed that not one single patient with hip-joint disease need recover with angular deformity.

Dr. Sayre said that it was not material to this discussion whether the joints were tubercular or septic. The point he desired to bring out was that, no matter what the nature of a long-continued inflammation of a joint, protection of that joint was necessary. He agreed with Dr. Phelps that no patient with hip-joint disease ought to have angular deformity.

An Unusually Severe Case of Congenital Lateral Curvature.—Dr. R. H. Sayre presented such a case. The patient was now fourteen years of age, but her mother said that at birth the deformity had been nearly as great as now. It was one of the most severe congenital cases he had ever seen, and she had first come to him one week ago. Examination at that time had shown that between the lower and upper ribs was a large V-shaped gap through which the liver could be felt. At the age of six years she had had pneumonia, and shortly after this an abscess, which was probably connected with the pleura, had opened through the right thoracic wall. Her breathing was puerile; there was no cardiac lesion. At the time of her birth the child had presented transversely, and the labor had been difficult, so that it was possible that this might have had something to do with the deformity. He thought all the ribs were present. When first seen, her height was four feet six inches and three quarters, but after her being suspended there was a gain of five eighths of an inch. He desired to call particular attention to this increase in the height as the result of the suspension. In another case, between September 5th and October 15th there had been a gain of three fourths of an inch; in another there had also been a gain of three fourths of an inch during a month of treatment, and in still another, in which the patient had measured before treatment four feet nine inches and seven eighths, the measurement after about a month had been five feet one inch and one eighth.

Dr. H. W. Berg said that the mere fact that the patient had such excellent use of her limbs would show that the curvature was not due to a lesion of the brain or spinal cord. If the ribs were congenitally absent, there would be sufficient cause for the curvature without supposing any injury during labor.

Dr. Judson remarked that the case was an illustration of the fact that in lateral curvature the kyphosis was sometimes very considerable, and might be as serious as in Pott's disease.

The Chairman said that some years ago he had called attention to the frequency of lateral curvature in very young children, most of which he believed to be of congenital origin. He had repeatedly urged the necessity of the careful examination of infants' spines as a matter of routine, and thus, if deformity was present, as giving an early opportunity for treatment. He believed that were this done we should not see such distressing deformity as Dr. Sayre had presented. Quite recently Dr. F. Beely, of Berlin, had pointed out that in these early cases of scoliosis the bones of the head were not symmetrical. The case just presented was instructive as showing how great might be the deformity in cases which had not had the benefit of early and judicious treatment. Notwithstanding the deformity developed very slowly, so many patients applied for treatment with the deformity well marked that he was inclined to believe that a large proportion of all cases of scoliosis in children were congenital.

A Case of Hip Disease showing a Remarkable Recovery by Nature's Methods.—Dr. V. P. Gibney presented a boy of eight years who had been admitted to the hospital in 1882 with disease of the right hip in the second stage. The family history was tuberculous. The disease had dated back to the previous April. On admission, he had been fairly nourished; hip flexed to 100° and held in this position. There was *practical* shortening of three inches and three quarters. On July 7, 1883, flexion had increased to 135°, and an abscess had filled the whole gluteal region. On October 12th the abscess had opened. On November 16th he had become greatly emaciated, pale, and waxy, the thigh was acutely flexed on the abdomen and abducted, the head being apparently dislocated on the dorsum, while the whole thigh from the junction of the lower and middle thirds to the trochanter major had been undermined, and large quantities of pus had been discharging from two sinuses. He could sleep only with the aid of two drachms of the U. S. P. solution of morphine, and his condition had been so bad that it had been thought there was no chance of his recovery, and he had been advised to be taken home. On the 27th of November he had been visited by a member of the house staff, who had found him suffering from diarrhœa and night-sweats, with poor appetite, a pulse of 130, and a temperature of 101°. On the 7th of December his condition had been about the same, except that a bed-sore as large as a half-dollar had formed over the trochanter on the sound side. Not seen again until October 14th of the present year, when he had returned, looking hale and hearty. He said that after leaving the hospital he had been confined to bed for a year and a half and had then begun to go about on crutches. For the past four years he had been wearing a five-inch high shoe. The sites of the old abscesses and of the bed sores were marked by very large cicatrices; the angle of greatest extension was 100°, and that of greatest flexion 90°; the adductors were very tense. His measurements were as follows: R. A. 27½, L. A. 29; R. U. 30, L. U. 36; R. T. 6 in. down 13½, L. T. 6 in. down 17¼; R. K. 12, L. K. 13; R. C. 10¼, L. C. 11¾.

The Necessity for Early Mechanical Treatment in Infantile Paralysis.—Dr. W. R. Townsend read a paper with this title, calling attention to the various stages of the disease, the methods of making a prognosis as to return of power and as to deformities resulting, and demonstrating the value of mechanical treatment in all stages, but especially in that before the appearance of deformity as a method of prevention.

Dr. Berg called attention to the importance of avoiding heavy apparatus, which often seriously interfered with the paralyzed muscles. In addition to this, all such apparatus should be applied from a *healthy* fixed point of support. One of the most troublesome symptoms in long-standing cases of infantile paralysis was the low surface temperature. He had given relief in two recent cases by wrapping the limbs at night in cloths wrung out of ice-water, and covering these with warm bedclothes.

Dr. Whitman said that the author had spoken of equinus and equino-varus as the most common deformities in untreated cases. Equino-valgus he thought to be the most common deformity in treated cases, and it was very difficult to prevent.

Dr. Shaffer said that in the fourth stage, where contractures occurred and paralyses were very pronounced, he had met with a very surprising series of cases. He had records of four cases of equinus in adolescents and adults where the anterior tibial muscles and the quadriceps extensor femoris had been involved, and the patient had sought relief on account of the deformity of the feet. He had, by means of his antero-posterior traction shoe, restored considerable power to these muscles. Another important point was the improvement in the nutrition of the feet resulting from this traction. One patient used to come periodically, as she expressed it, to "get her feet warm." Not only would the feet get warm during the application of the traction, but they would remain so for the rest of the day. He had never seen such results follow the use of electricity and massage and similar methods of treatment, with or without tenotomy. Of course, in calcaneus cases this traction could not be applied, and hence these desirable results could not be obtained. The cause of the improvement seemed to be the peripheral nerve irritation occasioned by the traction, exerted principally upon the gastrocnemius and all the other resisting tissues. He had known the calf circumference to increase half an inch by actual measurement during a month of this treatment.

Dr. Sayre thought that one explanation of the increased power of the quadriceps extensor could be found in the fact that the feet were placed in a position where they could be used more advantageously.

Dr. Judson considered the paper worthy of much attention, and said it was a matter of congratulation that the profession at large already recognized the importance of sending these cases to orthopædic surgeons.

Dr. Taylor thought that we might go even further than the author and state that a very large majority of the deformities of the lower extremities were preventable by proper orthopædic treatment. A foot very badly deformed from slight paralysis would often prevent the use of many muscles, and even where muscular power could not be restored, proper mechanical treatment would often secure to the patient very respectable locomotion. Mechanical treatment, by enabling the patient to go around more naturally, would often increase the warmth of the limbs, but for very bad cases he had for a long time made use of hot, dry air, or of two woolen stockings, one underneath and the other over the brace, to keep up the proper temperature of the parts.

The Chairman said that it was a popular idea that braces tended to bring on increased weakness of limbs and various disorders, and until recently the great obstacle to beginning mechanical treatment in the early stages had been the opposition of parents and of the attending physician. Within the last year he had seen two or three cases quite early, and had noticed a stage of tenderness which might possibly prove a temporary contra-indication to mechanical treatment. He did not think this condition had been mentioned very generally by orthopædic writers.

Dr. Whitman said that he had many times met with this condition.

Dr. Townsend said that he thought much of the opposition to braces arose from the fact that orthopædic surgeons were not agreed among themselves as to what kind of apparatus was most suitable for the treatment of the different classes of cases. He desired to emphasize the importance of that part of the paper which referred to the experiments of Mr. Young on electrical examinations of muscles. If by such an examination one could ascertain that in a given case contractures and deformity would result, the task of persuading parents to allow their children to receive early orthopædic treatment would be a much easier one than now.

MEDICAL SOCIETY OF VIRGINIA.

Twenty-second Annual Meeting, held in Lynchburg, on Tuesday, Wednesday, and Thursday, October 6, 7, and 8, 1891.

The President, Dr. William W. Parker, of Richmond, in the Chair.

(*Concluded from page 637.*)

Puerperal Eclampsia.—Dr. J. T. Graham, of Wytheville, read a paper in which it was shown, from a study of one hundred and eighty cases, that albuminuria could not always be accepted as the cause of eclampsia. The pathology of the disease was discussed under four divisions: (1) Albuminuria without eclampsia, illustrating the great majority of cases; (2) eclampsia without albuminuria—often the case; (3) the conditions of the kidneys during pregnancy; and (4) intestinal putrefactions. In the third division was discussed the theory of mechanical obstruction to the free flow of the urine by pressure from the gravid uterus upon the kidneys, their blood-vessels, and ureters. Especial emphasis was put on the fourth division as a cause of eclampsia—viz., *the absorbed soluble products of intestinal putrefactions*. This was shown to be more common in the pregnant state, when constipation was the rule, and was believed to be a very potent source of evil to the pregnant woman, especially if the kidneys were locked up by pressure or inflammation so that they could not eliminate poisons from the blood that had been absorbed from the putrefactions of the contents of the large intestine.

The treatment was divided into (1) prophylactic, (2) sedative, and (3) eliminative. The first was the most important. It was recommended that every woman, as soon as she knew she was pregnant, be placed under the supervision of a physician who should advise her as to her mode of living, and give her directions to keep her skin, kidneys, and bowels active. The urine of pregnant women should be more frequently examined than it was by many physicians at present.

The sedative treatment included the use of bromides, chloral hydrate, morphine, chloroform, and veratrum viride. The eliminative treatment comprised that with diuretics, diaphoretics, hydragogue cathartics, and venesection.

The Symptomatology and Treatment of Chronic Forms of Nephritis.—The following is a brief summary of the views expressed in a paper by Dr. William C. Dabney, of University of Virginia:

1. Dropsy was often absent in cases of chronic Bright's disease.

2. The symptoms which, when not clearly due to other causes, should suggest an examination of the urine and cause a suspicion of Bright's disease were (1) pallor or a dark color of the skin of the face; (2) nausea and vomiting; (3) headache and giddiness, drowsiness, dullness, stupor, or convulsions; (4) disturbances of vision; (5) paroxysms of difficult breathing.

3. Albuminuria and the presence of casts were not invariable symptoms of chronic Bright's disease, but were often absent in the most serious cases.

4. The amount of solid urine discharged was diminished in all cases.

5. A milk diet and the avoidance of cold and dampness were of the greatest importance in these cases.

6. Digitalis was useful when the flow of urine was scant and the pulse soft and compressible.

7. Nitroglycerin was useful when the pulse was full and hard.

9. Nitroglycerin and digitalis might often be given together with advantage.

Concussion of the Lungs.—Invited guest Dr. B. A. Watson, of Jersey City, N. J., read a paper with this title, based on a study of one hundred and forty-one original experiments and observations. He used the term "concussion" in precisely the same sense that it was used in speaking of "concussion of the brain," etc., allowance being made for the differences in the weight and texture of the organs involved. He considered his subject under the following subdivisions: 1. An organic disturbance, attended with slight pathological lesions, not characterized by any consecutive complications. 2. A severe organic disturbance, attended with severe pathological lesions, characterized by physical and rational symptoms, and commonly followed by consecutive complications which were generally inflammatory. 3. A grave organic disturbance, attended with grave pathological lesions, frequently producing death within a few minutes or a few hours. Indirect concussive force was much more productive of serious lesions in the thoracic, abdominal, and pelvic organs than to the brain or spinal cord.

A Successful Myomectomy for Parasitic Tumor.—A paper thus entitled was read by Dr. I. S. Stone, of Washington, D. C. The author described the steps of the operation, which was not unusually difficult, although the attachments were quite unusual. The omental adhesions were not very formidable, but two very stout adhesions simulated the broad ligaments, which afterward proved to be otherwise located. The only connection with the uterus remaining was a slender adhesion attached to its posterior surface. The new pedicle was found growing upon the posterior surface of the right broad ligament, and was treated after the Schröder method, and allowed to remain within the abdomen, as it was very short. The growth was a very soft myoma, weighing about fifteen pounds, and contained very much fluid. It had been growing for more than a year, but the patient had not discovered its presence until recently. The uterus, tubes, and ovaries were normal. The drainage-tube did excellent service in this case, discharging abundant rusty-colored serum for many days.

The Treatment of Goitre by Electrolysis.—Dr. Charles M. Shields, of Richmond, presented a paper on this subject. He applied the electrodes to the surface of the skin—the *labile* method. Four cases of fibrocystic goître were reported that had resisted the usual treatment. Three had been cured, and the fourth reduced two thirds. The current from fifteen to thirty Leclanché cells had been used; the sittings had been from twenty to thirty minutes long, and from two to six days apart. Treatment had continued from six weeks to six months. The author did not have confidence in it for fibrous goître, but considered it the safest and most efficient means at our command for the fibrocystic form.

A Glimpse of Ancient Egyptian Ophthalmology was the title of a paper of historic value by Dr. William H. Baker, of Lynchburg.

Dr. Joseph A. White, of Richmond, after reading a paper on **Mistaken Impressions about So-called Nasal Catarrh,** presented another by title on **Some Suggestions about Cataract Operations.**

Hereditary Chorea.—Dr. Wharton Sinkler, of Philadelphia, an invited guest, reported three additional cases and gave a *résumé* of the recent literature of the subject. He stated that since his previous paper in 1888 a number of new cases had been reported in different parts of the world. No autopsies had been reported since that time, but he had had opportunity himself of making an autopsy in one of his cases. The examination had showed no macroscopic changes in the brain or cord, but interesting changes had been shown under the microscope, especially about the central canal and antero-lateral columns.

Recent Advances in Neurology and Psychology.—Dr. William F. Drewry, of Petersburg, presented a paper full of new facts, new methods, new theories, new remedies, personal observations, etc. By way of introduction he reviewed the history of the progress made during this century in the study of diseases of the mind and the nervous system, followed by an epitome of the progress made during the past year in various neuroses and psychoses—viz.: athetosis, Graves's disease, chorea, epilepsy, neuralgia, asthma, angina pectoris, locomotor ataxia, "astasia-abasia," inebriety, alcoholic paralysis, general paresis, paranoia and other forms of insanity, cerebral localization, suspension as a surgical treatment of neuroses, ocular signs in brain and nervous diseases, new reflexes, etc. The subject of insanity received its full share of attention, particularly as it concerned the colored race. The author, who had had considerable experience in the treatment of mental diseases in the negro, said that the increase of insanity in the negro race during the past twenty-five years had been at the enormous rate of one hundred per cent. or more every ten years. This had been the case in Virginia, and the increase had been hardly less in other States where the same ætiological influences existed. From 1880 to 1890 the negro population of Virginia had increased only 1·46 per cent. (according to the census report), while the number of insane negroes in 1890 was double that in 1880. In 1860 there was only one insane negro to every 5,800 of the population, while now there was approximately 1 to every 800. In the white race the proportion was 1 to every 625, about. The causes productive of the rapid increase of insanity in the negro since the war had been numerous: Alcohol, vices, excesses in vicious habits, burden of support, overcrowded and unhealthy apartments, violation of rules of health and hygiene, idleness and general privation, political and religious excitement, etc.—in short, *abuse of freedom*. Heredity had as yet played little part in causing insanity in the negro, but it was growing in importance, and in the future it would doubtless be a most potent ætiological factor. The author had observed that the negro was not so liable as the white race to certain neuroses—viz., chorea, spinal sclerosis, etc. General paresis had been rarely seen by him in the negro. Of 2,575 negroes treated in the past twenty years in the Central Asylum, only thirteen had been paretics, and in some of those the symptoms had been by no means well marked. He had never seen a case of delirium tremens in the negro. The abuse of alcohol in the negro was more apt to produce epileptoid convulsions, mania, etc. Dipsomania was of frequent occurrence in the black race. They were more subject to the insanities of constitutional disease.

The author concluded his paper with some sound suggestions of reform in asylum management. He urged that more accommodations should be provided for the insane in State hospitals, that all the insane should be cared for at the public expense, that asylum officers, particularly physicians, should undergo an examination before they were eligible to a position in any hospital for the insane, that the term "lunatic asylum" should be abolished and "hospital for the insane" substituted, that politics should play no part in the management of insane hospitals, and that pathological departments should be established in connection with all insane hospitals. He commended the lunacy laws of New York.

The Drink Problem from a Medical Point of View was the title of the paper presented by invited guest Dr. T. D. Crothers, of Hartford, Conn. He emphasized the importance of the hereditary tendencies to the disease of inebriety. Those of to-day establishing the drinking habit now were planting the seed from which drunkards would develop in future generations. To treat the disease in future years was to correct the hereditary tendencies of this age. Drinkers and drunkards should therefore be considered as dangerous to society, and be absolutely isolated until their habits were fully corrected. Let them be placed in hospitals, etc., maintained, if need be, by taxing the manufacturer and seller of spirits. While confined as inmates, let the patients be given employment also, both for the sake of occupation and for healthful diversion.

The Disposal of Criminal Lunatics.—Dr. J. T. Graham, of Wytheville, read a paper in which it was suggested to confine for a term of twelve years all persons who were adjudged insane by a trial in one of our courts, and not discharge them if they showed symptoms of insanity during the last five years of their confinement. If a cure was not effected in twelve years, of course they should be confined longer; but if they were really not insane, as the public were often led to believe, twelve years was a very short term of imprisonment for those who committed such a crime as murder.

Book Notices.

Epidemic Influenza: Notes on its Origin and Method of Spread. By Richard Sisley, M. D., Member of the Royal College of Physicians of London. London: Longmans, Green, & Co., 1891. Pp. x–150.

So many irrational and unreasonable things have been said about *grippe* that a work that treats of it in a rational manner merits consideration. A disease that has in so short a time taken the palm from malaria as the refuge of the uncertain diagnostician is certainly worthy of scientific study. This the author has evidently attempted to give, and with a fair degree of success. The historical sketch of the disease and the description of its method of spread are very interesting. The evidence adduced in proof of its contagious nature is very strong and the various lines of argument in support of this belief are worked out with great care.

The period of incubation the author believes is short, ranging probably between one and five days. Upon this and numerous other points, however, he is extremely cautious in his statements, and there is evidently much yet to be learned about the disease.

On Painful Menstruation. The Harveian Lectures, 1890. By Francis Henry Champneys, M. A., M. D. Oxon., F. R. C. P., Physician-accoucheur and Lecturer on Obstetric Medicine at St. Bartholomew's Hospital (late at St. George's Hospital), etc. London: H. K. Lewis, 1891.

This is one of the most interesting series of the Harveian lectures. Beginning with normal menstruation and discussing the Changes in the Uterus as age advances to puberty, Changes during the Monthly Cycle, and the Condition of the Pelvic Organs during the Cycle, the author rises to his theme, and limits all forms of dysmenorrhœa to one of two classes—the membranous and the spasmodic.

To membranous dysmenorrhœa he has given much thought and has exhausted a wide and various literature upon the subject. Of it he says the flow is profuse, the pain is not relieved by the flow, but disappears only when the membrane has passed; it is persistent to advanced age, may be inherited, and with it sterility is the rule. Two large tables of these cases are given which will be interesting to statisticians, but of little use to the general reader.

Spasmodic dysmenorrhœa, synonymous with neuralgic, obstructive, and mechanical dysmenorrhœa, is, according to Dr. Champneys, "the only real dysmenorrhœa," and much of the book is given up to the discussion of this form, its history, symptomatology, pathology, and treatment.

While the book contains nothing startlingly novel, it is a careful, trustworthy, and instructive *résumé* of the subject. The publishers have set the work in large, clear type and printed it on excellent paper, making it altogether a most commendable little book.

Atlas of Clinical Medicine. By BYROM BRAMWELL, M. D., F. R. C. P. Edin., F. R. S. Edin., Assistant Physician to the Edinburgh Royal Infirmary, etc. Volume I. Part 2. Edinburgh: T. & A. Constable, 1891.

THE second fasciculus of this great work is fully equal to the first, which has already been noticed in this journal. The design, which is so extensive as to justify the title of Illustrated Treatise on Clinical and Systematic Medicine, is being carried out admirably. The present installment deals with Addison's disease, melanotic sarcoma, and Hodgkin's disease.

The text is somewhat novel in design, and presents the various subjects in a most satisfactory manner. Following an exhaustive discussion of each disease, under the usual heads of ætiology, pathology, symptomatology, etc., there is a minute description of the plates and a clinical history of the patients from which they were taken. Then there are minute directions for the clinical investigation of the disease under consideration, which must prove of the greatest value to the physician who wishes to make a scientific study of his cases. It has been the experience of every such physician that, even after a thorough study of a subject, he has allowed some instructive and interesting case to pass from observation with certain points unnoticed. We know of no other work in which such complete directions are given for clinical investigation. Every point important to be noted is mentioned under its appropriate heading, while the post-mortem appearances to be especially observed are described in a similar manner. Text of this character in connection with the admirable plates renders the work one of inestimable value to the scientific worker in medicine.

The wisdom of making the plates detachable sheets is to be doubted seriously. They are apt to be removed and are soon scattered and lost, and are far more liable to be mutilated and soiled than when bound with the text. There are certain advantages in loose sheets, especially to the teacher, but they are, as a rule, more than balanced by the disadvantages.

In addition to the plates in connection with the subjects considered in the text, there are three full-sized plates illustrating molluscum fibrosum, xeroderma pigmentosum, and mania.

The Practice of Hypnotic Suggestion: being an Elementary Hand-book for the Use of the Medical Profession. By GEORGE C. KINGSBURY, M. A., M. D. (University of Dublin). Bristol: John Wright & Co., 1891. Pp. viii–206.

THIS little volume makes no pretension to do more than acquaint its readers with the rudiments of practical therapeutic hypnotism and to warn them against its dangers and difficulties. It deals very briefly with the history of the subject, details the methods employed to induce hypnosis, and gives the phenomena induced and the possibilities of medical and surgical treatment. The author advocates the legal restriction of the practice of hypnotism to the medical profession and the abolition of public exhibitions of it.

Hypnotism is no longer regarded with suspicion by the bulk of the profession, but it has awakened a widespread interest and a desire to know something of it and its therapeutic qualities. It is to satisfy this desire that this work has been issued, and it accomplishes its purpose creditably. Our knowledge regarding this subject is as yet scanty, and its compilation in this manner will materially assist in its development.

BOOKS, ETC., RECEIVED.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by Walter Chrystie, M. D., Late Physician to St. Clement's Hospital, and Instructor in Physical Diagnosis in the University of Pennsylvania. Vol. I. General Therapeutic Considerations — Prescription Writing — Remedial Measures other than Drugs—Preventive Medicine—Diathetic Diseases and Diseases of Nutrition. With Illustrations. Philadelphia: Lea Brothers & Co., 1891. Pp. 8–17 to 1052.

Human Monstrosities. By Barton Cooke Hirst, M. D., Professor of Obstetrics in the University of Pennsylvania, and George A. Piersol, M. D., Professor of Histology and Embryology in the University of Pennsylvania. Part I. Illustrated with Seven Photographic Reproductions and Eighteen Woodcuts. Philadelphia: Lea Brothers & Co., 1891. Pp. 11 to 88.

A Manual of Venereal Diseases. Being an Epitome of the Most Approved Treatment. By Everett M. Culver, A. M., M. D., Pathologist and Assistant Surgeon, Manhattan Hospital of New York City, and James R. Hayden, M. D., Chief of Clinic, Venereal Department of Vanderbilt Clinic, College of Physicians and Surgeons, New York. With Illustrations. Philadelphia: Lea Brothers & Co., 1891. Pp. viii–15 to 294.

Cookery for the Diabetic. By W. H. and Mrs. Poole. With Preface by Dr. Pavy. London: Longmans, Green, & Co., 1891. Pp. vi–64.

An Interesting and Instructive Case of Uræmia, combining Coma and Mania, with Marked Local Toxæmic Manifestations. By P. C. Remondino, M. D., San Diego, Cal. [Reprinted from the *Journal of Nervous and Mental Disease.*]

Who can be Medical Experts? By Henry A. Riley, Esq., of New York. [Reprinted from the *Medical News.*]

A Volumetric Study of the Red and White Corpuscles of Human Blood in Health and Disease, by Aid of the Hæmatokrit. By Judson Daland, M. D. [Reprinted from the *University Medical Magazine.*]

Improved Gynæcological Instruments. By Hunter Robb, M. D., Baltimore. [Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children.*]

Some Facts every Practitioner ought to know about Squint. By Albert Rufus Baker, M. D., Cleveland.

Pelvic Cellulitis. By E. L. B. Godfrey, A. M., M. D. [Reprinted from the *Medical Bulletin.*]

The Causes of Asthenopia. By D. B. St. John Roosa, M. D., LL. D. [Reprinted from the *Transactions of the Medical Society of the State of New York.*]

Comparative Value of Mercury and the Iodides in the Treatment of Syphilis. By James T. Jelks, M. D., Hot Springs, Ark. [Reprinted from the *Journal of the American Medical Association.*]

The Proceedings of the American Electro-therapeutic Association. First Annual Meeting, held at Philadelphia, September 24, 25, and 26, 1891. [Reprinted from the *Medical News.*]

West Virginia Resolutions. By Webb J. Kelley, M. D., Galion, Ohio. [Reprinted from the *Cleveland Medical Gazette.*]

Announcement of the Sheppard Asylum, a Hospital for Mental Diseases, Baltimore, Md., 1891.

Ueber die Trunksucht und Versuche ihrer Behandlung mit Strychnin. Von Gustav Beldau. Jena · Gustav Fischer, 1892.

Un caso di afonia isterica migliorato coll' ipnotismo e guarito col massagio. Pel Dott. Antonio Damieno. [Estratto dal *Giornale intern. delle scienze mediche.*]

Miscellany.

Eye Strain and Disease.—Under the heading of A Great Medical Discovery Ignored, the *Medical News* for December 12th says:

There are few medical truths that have been discovered fraught with more possible and incalculable good to humanity than one that is ignored by the great body of the medical profession.

There are explanations and sufficient reasons for this anomalous fact. Among them may be noted these:

1. The discovery has come about slowly and silently. It has been made by no one man and has come with no flourish of international congressional trumpeters. So softly and slowly has it crept into scientific medicine that its own advocates are but half aware of it, and do not yet realize its almost unparalleled value.

2. It is a therapeutic measure that depends for its exercise upon an exactness of knowledge of delicate mysterious physiological and psychological functions that few possess, and upon a subtle discrimination and judgment with which, by character or education, few are endowed.

3. It has the misfortune to depend for its promulgation and practical application upon the specialist, and almost upon the specialist of a specialty—and this in a profession and in an epoch in which it is fashionable to sneer at specialism, and at the specialist who dares plead for the truth he knows—and that, at first at least, only he can know.

4. The tradition and habit and ambition of the ophthalmic specialist is to treat diseases—inflammations—or to perform operations upon the eye. The truth is that refraction-work has come into tremendous importance, and must make up nine tenths of the routine practice of the future ophthalmologist.

Is it an exaggeration to say that the chief complaints of fully one half of the patients that apply to the family physician are of headache and digestional affections? Is it another exaggeration to say that fully one half fail to get permanent relief?

Is it again an exaggeration to say that from these causes a large proportion of women have hopelessly resigned themselves to a lifetime of wretchedness?

The oculist daily has patients who have spent (to them) fortunes paying physicians and druggists; who have taken everything and done everything for ten, twenty, or thirty years to get relief from wretchedness beyond description. No physician ever said "eyes" to them. Yet a pair of glasses relieving the compound hyperopic, perhaps unsymmetrical, astigmatism and anisometropia give relief as if by magic.

If these things are true to anything like the extent contended for, the general standard of health is being distinctly lowered and the average vitality of the race lessened by a cause that so generally and so profoundly affects its mothers for evil. Headache—deranged function of the organ that controls vital function—and digestional abnormity — nutrition being the very source of vital power—have an evil significance impossible of over-valuation.

For twenty years the ophthalmologists have been tirelessly preaching that eye-strain due to refraction errors is the chief causational factor in the production of headache. This is the truth, and yet the truth is ignored the world over. In Europe it is hardly suspected, commonly scouted, and, so far as therapeutic application is concerned, hardly dreamed of. It is only in the United States, and even here only in one or two cities, that the truth has a comparatively adequate application. To the great majority of those of the country who are suffering from ametropically-caused disease no word has come as to the origin of their trouble.

But this, as regards headache alone, is only half of the truth. Wherever there is headache there is nutritional disturbance. In rare cases there may be a digestional reflex neurosis without headache and due to ocular irritation. Usually the headache precedes or accompanies. Hence it is that the full power of eye-strain to work disaster will never be realized until there is a general recognition on the part of the profession that anorexia, dyspepsia, and constipation are very, very frequently due directly to eye-strain. It is perfectly useless to sneer at hobby-riding. The sneer will not alter the fact or relieve the patient. It were better and more scientific to test the theory with a mind free of prejudice. One little proof is ready to hand: let the sneerer put on a pair of spectacles such as every oculist applies every day to correct ametropia. At most, it will take but a few hours for the artificial ametropia thus produced to bring on headache, and not only anorexia, but probably vomiting. There is one other test, easily applied: paralyze the accommodation for a week or two in a young patient suffering from *possible* reflex ocular neuroses. The frequent relief will be a striking lesson in differential diagnostication.

Sick headache, from which thousands in every community are sufferers, is usually, if not always, due to eye-strain, and, unless of lifelong duration, is quickly curable by a pair of proper spectacles.

Anæmia is, perhaps, most frequently due to the ocular irritation of uncorrected ametropia, followed by nutritional disturbance. Many cases of hysteria have the same ætiology.

But possibly the worst result of eye-strain is the generally impaired nutrition, the "nervousness," the neurasthenia, the reduced vitality that so far lessens resisting power as to make the system incapable of withstanding infectious disease or exceptional strain of any type. Eye-strain is a common and great soul-exhauster for the inrooting of a prolific crop of the weeds of general disease.

The "nervous" origin of disease is a fact becoming more recognized every day. If diabetes and albuminuria, as contended, may be of nervous origin, then diabetes, etc., may possibly be due to ametropia. Functional heart trouble, temporary anæsthesia, and paralyses, localized pain, etc., may be caused by a deranged reflex from a morbid peripheral stimulus, such as that of the eye. Functional disease is the forerunner almost always of organic disease—the two are stages or phases of the same fact. Desire and physiological habit produce organs. Unhygienic habit and abnormal function wreck organs.

"But we cure headache, sick headache, giddiness, anæmia, and abnormalism of digestion by drugs alone, and every day." Willingly granted! because these affections are often, and perhaps generally, due to other than ocular causes. And more than this, powerful tonics may sometimes relieve, even when the neurosis is of ocular origin. It is an undeniable fact that some cures may be effected without touching the final and veritable causes of the disease. In stopping the one result of a reflex ocular neurosis by powerful drug-action, the reflex may be shunted elsewhere, or more probably the evil effect of forcing ametropic eyes to continue their work without correcting lenses will be to produce the local ocular evils of blunted retinal sensibility (amblyopia), ametropic chorioido-retinitis, imbalance of the muscles (heterophoria), conjunctivitis, cataract, etc.

The cause of so much eye-trouble in modern life? A perfectly evident one: The eye in the animal world and in the human organism up to the present century was developed in response to definite need—that of the clearest possible distant vision. Civilization, demanding close and continued near vision, with its printing and writing and schools and commercialism, its indoor and urban life—all this is a thing of the past few dozen years. An organ produced by millions of years of reaction and habit can not, without harm and injury, be forced in a hundred to a different usage. The tremendous importance of the eye to the organism makes Nature, with her subtle, wonderful wisdom, turn the irritational eye-strain reflex to brain or nutritive system—anywhere but to the all-important eye!—and hence it is that the eye does not feel pain, but other organs do. Inhibited reflexes produce general hyperæsthesia, vertigo, and headache; switched reflexes produce neuralgia, anorexia, car-sickness, etc.

There is one other manner in which civilization may act upon the eye; the intense labor to which it puts the eye brings ocular irritation and congestion, with varying tension, that undoubtedly produce or help to produce corneal asymmetry or astigmatism, the great agent of eye-strain. The necessity for accurate vision, the slavish continuance of long ocular labor, spurs the over-sensitive ciliary muscle and nerve-centers to extraordinary exertion and, each aiding other, the vicious cycle is complete. The hyperæsthetic sensibilities, the headaches, night-terrors, and anorexia of pale, early-forced, book-fed school children are the inevitable product of far-sighted astigmatism and short-sighted ambition. The brain is forced to unwonted tasks with imperfect ocular means. A discriminating physiologist sees that the eye is an organ fearfully overworked, bound up most intimately with every mental and physical act, most indescribably delicate in adjustment and function, and responding to a stimulus millions and millions of times more swift and more infinitesimally small than that of any other sense-mechanism of the body.

Psychologically, character and calling in life have doubtless often been changed and determined by ocular irritation. It is a truism that the disposition is entirely changed by it. The mind is almost the sole product of the function of vision, all thinking being in pictures, the very letters of the alphabet being conventionalized pictures. American morbid restlessness and hyperæsthesia may to some extent be due to ocular irritation.

The practical lesson of it all is (so subtle are these beginnings and causes of evil) that every child, well or not well, should have its eyes examined to see if possible or unsuspected abnormity of the refraction exists. Especially is the possibility of an ocular origin to be suspected in all cases of malassimilation not clearly traceable to other causes, in all cases of headache, neuralgia, chorea, nightmare, insomnia, etc.

With this proviso and condition: That the ophthalmologist have been thoroughly trained in the very modern science and art of refraction, that a mydriatic be used, and that the refractive error be patiently and accurately worked out, not with the ophthalmoscope, but with the test-lenses, and worked out to a quarter or even to an eighth of a dioptre, and that a painstaking optician fit and adjust accurately made lenses. It is also necessary that spectacles be readjusted monthly so that they shall be kept with mathematical precision in their proper position before the eye.

Mortality in Cities in the United States.--The following table represents the mortality in the cities named, as reported to Dr. Walter Wyman, Surgeon-General of the Marine-Hospital Service, and published in the Abstract of Sanitary Reports for December 11th:

CITIES.	Week ending—	Population, U. S. Census of 1890.	Total deaths from all causes.	DEATHS FROM—										
				Phthisis pulmonalis.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Dec. 5.	1,515,301	675	103	..	..	..	..	..	14	19	32	6	1
Chicago, Ill.	Dec. 5.	1,099,850	460	37	..	..	..	.	..	31	14	29	6	3
Philadelphia, Pa.	Nov. 28.	1,046,964	435	44	..	..	..	..	..	3	13	37	..	2
Brooklyn, N. Y.	Dec. 5.	806,243	353	36	..	..	..	..	..	4	6	11	1	....
Boston, Mass	Dec. 5.	448,477	201	38	..	..	..	..	..	5	..	7	..	....
Baltimore, Md.	Dec. 5.	434,439	170	21	..	..	..	..	..	7	3	10	1	....
St. Louis, Mo.	Dec. 5.	451,770	193	....	..	..	1	..	..	2	3	6	..	....
San Francisco, Cal.	Nov. 28.	298,997	157	....	..	..	..	..	..	5	..	6	..	....
Cincinnati, Ohio	Nov. 20.	296,908	114	13	..	..	..	..	..	2	1	7	..	....
Cincinnati, Ohio	Nov. 28.	296,908	125	19	..	.	..	..	..	2	2	11	..	...
Cincinnati, Ohio	Dec. 4.	296,908	129	16	..	..	..	..	..	5	4	8	..	....
Cleveland, Ohio	Nov. 28.	261,253	79	7	..	..	..	..	..	3	..	2	..	....
Cleveland, Ohio	Dec. 5.	261,353	69	7	..	..	..	..	..	..	..	4	..	....
New Orleans, La.	Nov. 21.	242,039	149	21	..	..	..	..	..	..	..	1	..	...
New Orleans, La.	Nov. 28.	242,039	122	14	..	..	..	..	..	1	..	..	..	....
Pittsburgh, Pa.	Nov. 28.	238,617	81	....	..	..	..	..	..	9	2	8	..	....
Detroit, Mich.	Dec. 5.	205,876	78	....	..	..	..	..	..	2	7	6	..	....
Minneapolis, Minn.	Dec. 5.	164,738	34	...	..	..	..	..	..	1	4	2	..	....
Louisville, Ky	Dec. 5.	161,129	66	8	..	..	..	..	..	2	1	3	..	....
Rochester, N. Y.	Dec. 5.	133,896	32	2	..	..	..	..	..	2	..	2	..	....
Providence, R. I.	Dec. 4.	132,146	59	....	..	..	..	..	..	3	..	..	..	....
Indianapolis, Ind.	Dec. 5.	105,436	33	3	..	..	..	..	..	1	..	4	..	1
Toledo, Ohio.	Dec. 4.	81,434	23	....	..	..	..	..	..	..	1	2	..	....
Richmond, Va.	Nov. 28.	81,388	60	13	..	..	..	..	..	1	..	3	..	....
Richmond, Va.	Dec. 5.	81,388	46	4	..	..	..	..	..	1	..	2	..	....
Nashville, Tenn	Dec. 5.	76,168	34	8	..	..	..	..	..	..	..	..	.	2
Fall River, Mass.	Dec. 4.	74,298	16	....	..	..	..	..	..	1	..	..	..	....
Portland, Me.	Nov. 28.	36,425	10	....	..	..	..	..	..	1	..	..	..	....
Portland, Me.	Dec. 5.	36,425	12	....	..	..	..	..	..	..	..	..	..	....
Binghamton, N. Y.	Dec. 5.	35,005	23	3	..	..	..	..	..	1	..	3	..	....
Altoona, Pa.	Oct. 31.	30,337	10	....	..	..	..	..	..	..	..	3	..	....
Altoona, Pa.	Nov. 7.	30,337	9	....	..	..	..	..	..	1	..	1	..	....
Altoona, Pa.	Nov. 14.	30,337	9	1	..	..	..	..	..	..	..	..	..	....
Altoona, Pa.	Nov. 21.	30,337	7	1	..	..	..	..	..	..	..	..	..	....
Altoona, Pa.	Nov. 28.	30,337	13	1	..	..	..	..	..	1	..	1	..	....
Yonkers, N. Y.	Nov. 28.	32 033	10	2	..	..	..	..	..	1	..	..	..	....
Mobile, Ala.	Dec. 5.	31,076	20	2	..	..	..	..	..	1	..	..	..	....
Galveston, Texas	Nov. 27.	29,084	6	....	..	..	..	..	..	..	..	..	..	....
Auburn, N. Y.	Dec. 5.	25,858	11	2	..	..	..	..	..	1	..	1	..	....
San Diego, Cal.	Nov. 30.	16,159	5	....	..	..	..	..	..	..	..	..	..	....
Pensacola, Fla.	Nov. 28.	11,750	6	....	..	..	..	..	..	..	..	..	..	....

The New York Academy of Medicine.—The programme for the last stated meeting, on Thursday evening, the 17th inst., announced a discussion of Streptococcus Myelitis in Children (the ætiology by Dr. Henry Koplik, surgical considerations by Dr. W. W. Van Arsdale).

At the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 21st inst., Dr. Francis Valk is to report a case of Tonic Spasm of the Accommodation.

Influenza.—"A Bavarian priest is reported to cure influenza in the manner which he thus describes: A man came to him with influenza. He told him: 'Go to bed at once; wash your neck, chest, and whole upper body with very cold water, and tie a dry linen towel about your neck. Cover yourself up warmly, but not too heavily. Continue to wash yourself in this manner every hour for ten hours. Then completely wash over the entire body with cold water as rapidly as possible.' After this complete lavation there broke out such a violent perspiration that the patient was drenched with it all over as he lay in bed, and with this perspiration the last remains of the disease were likewise swept away; the patient had regained his former peasant vigor."—*British and Colonial Druggist.*

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

THE NEW YORK MEDICAL JOURNAL, DECEMBER 26, 1891.

Lectures and Addresses.

POLIOMYELITIS WITH PERINEURITIS.

A CLINICAL LECTURE
DELIVERED AT THE ARAPAHOE COUNTY HOSPITAL,
October 17, 1891.

By J. T. ESKRIDGE, M. D.,
DENVER, COL.,
NEUROLOGIST TO THE ARAPAHOE COUNTY, ST. LUKE'S, AND DEACONESS HOME HOSPITALS.

GENTLEMEN: I wish to call your attention to-day to this case and compare it with the case of multiple neuritis which we studied two weeks ago. H. A. W., aged thirty, male, plasterer, Michigan, came to Colorado two years ago. His family history is unimportant. He always enjoyed good health up to the time of the beginning of the present illness. He has never been addicted to the use of alcohol and denies venereal trouble or sexual excesses. He has never received any injury to the head or spine. On or about the 14th of September, 1891, he began to feel languid and indisposed, but continued to work until the 19th, when he took to his bed. At that time he had pain in head and back of neck, and complained of dizziness, which he says made everything appear confused to him, especially in regard to sight and hearing. His temperature, when first taken after going to bed, was 103°. Shortly after this he had pain in both shoulders, down his back and in hips and legs, and experienced numb sensations in each arm and hand. The pain appears to have been largely in the joints, and the sensory disturbances entirely of a subjective nature. Two days after taking to his bed he noticed the fingers of the right hand became paralyzed, and in a few hours paralysis had ascended the right arm, involving all the muscles and most of the shoulder muscles of that side. Only twelve hours elapsed from the beginning of the numbness in fingers to complete loss of power in that arm. The left arm was affected about the same time as the right, but only the parts above the elbow were much involved. He seems to have had fair strength in the left hand, but the muscles of the upper arm and shoulder of the left side have been paralyzed from the first. About two days after he noticed the first disturbances in the arms, pain having descended in the back to the lumbar region in the mean time, the right leg was affected with weakness and numb sensations, and a few hours later it was totally paralyzed. The left leg was weak, but he does not seem to have had complete paralysis in this limb at any time. He states that after his arms were first affected he was able to walk around the room for two days before his legs became paralyzed. The pain in the head and shoulders gradually subsided, but in the hips and legs it still remains. It seems to be dull and rheumatoid in character, but at times he says it is sharp and distressing. The bowels have been constipated from the first. The appetite was poor in the early part of the disease, but it is better now. He tells us that his legs have been covered with cold perspiration from time to time. He was admitted to the hospital October 10th, about three weeks after the beginning of the attack. Examination at that time revealed the following condition. Legs—right: With patient on his back the leg is held in a semiflexed position, and he is unable voluntarily to flex or extend it. Forced extension gives rise to pain on the inner side of the thigh about six inches above the knee, and on outer side of leg about four inches below the knee. The only comfortable position for the leg is the one described, while it is supported on either side by pillows. He can flex and extend the toes, but is unable dorsally to flex the foot. Plantar flexion of the foot can be fairly well effected. The muscles of the calf are greatly wasted and flabby, and the anterior tibial group is in a more advanced atrophic condition. The whole of the calf of the leg is sensitive to pressure, but this condition is more marked over the region of the nerves. The extensor thigh muscles still preserve some strength, but the flexors are entirely paralyzed. The abductors and adductors are exceedingly weak. The plantar reflex and knee-jerk are absent. Cremaster reflex is present. Left: There is considerable wasting of the muscles of the leg, but it can be voluntarily extended or flexed at pleasure. Dorsal and plantar flexion of the foot is good. There is tenderness over the calf muscles, especially in the region of the nerves. The thigh muscles act well, and he can voluntarily place the leg in any position he desires. Plantar, cremaster, and inguinal reflexes are present. Knee-jerk and epigastric reflex absent. Right hand and arm: All the fingers of this hand, with the exception of the index, assume the semiflexed position. The index finger remains extended. He can move the fingers of the right hand slightly, but is unable to completely close or open the hand. You observe the curious condition here, that when the middle, ring, and little fingers are moved in flexion or extension, the index finger remains motionless and the thumb is adducted slightly; but when these fingers are kept quiet and the thumb adducted and abducted, the index finger moves slightly. We have in this illustration the fact that the muscles may be paralyzed for one movement, and not for another, in certain lesions of the central nervous system. Flexors and extensors of the wrist are nearly paralyzed. He can, by considerable effort, pronate and supinate the arm. The biceps and deltoid are entirely paralyzed, and the triceps is almost paralyzed but not completely so. The great pectoral muscle still retains some power, as do the other shoulder muscles. Left arm and hand: The hand can be flexed and extended with fair force and put in various positions. Dynamometer registers forty-four. Flexors and extensors of the wrist are fairly strong. Supination and pronation are effected easily and with power. None of the forearm muscles are paralyzed, but are slightly paretic. The biceps is almost entirely paralyzed, while the triceps retains more power. The deltoid muscle is completely paralyzed. The pectoral and other shoulder muscles are fairly strong for certain movements. There is tenderness over the arms in the region of the nerves and he complains of pain in the shoulder. The clavicular portion of the great pectoral muscle is sensitive to pressure. There is considerable muscular wasting, especially in the deltoid, and this is more marked than on the right side. Measurements: Calf—right, 11⅛; left, 11¼. Thigh 10 inches above the knee—right, $15\frac{1}{2}$; left, $15\frac{1}{4}$. Forearm—right, $8\frac{7}{8}$; left, $9\frac{1}{4}$. Upper arm—right, 9; left, $8\frac{5}{8}$. Axillary region over lower portion of the deltoid—right, 10; left, $9\frac{1}{8}$. You notice when he is lying on his back he is unable to prevent the right leg, which is held in the semiflexed position, from falling from side to side; and if it is allowed to fall he complains of great pain in the upper and inner region of the thigh. You observe when I move the right leg it gives rise to no pain in the hip. The facial muscles are uninvolved. Tongue protrudes in median line. Left pupil is larger than right. Both react to light and accommodation, and in looking at a near object both pupils are nearly equal in size. He complains of a numb feeling in the legs and pain in thigh, especially during the afternoon and evening. At other times he tells us he has no pain unless his legs are moved. Tactile, temperature, muscular, and pain senses are normal in every portion of the body and limbs. There is no affection of any of the special senses. There is no pain or feeling of constriction around the body. On examining the eyes with the ophthalmoscope, I find them normal. He has had entire control over the bladder and bowels from the earliest part of his sickness. There is some tenderness over the sacral and lumbar regions of the spine, but none over the dorsal. There is no deformity of the spine or evidence of bone trouble. In testing the muscles with the faradaic current it is found that those of the right leg, of the entire right arm and shoulder, and of the upper left arm and shoulder, respond less readily than in health.

To recapitulate, this man up to four weeks ago had enjoyed good health, when, without apparent cause, except probably being reduced in strength by overwork and worry, he began to feel ill and was unable to do his work without extreme effort. He continued to work, however, for four days after his bad feelings began, and then was compelled to take to his bed with pain in his head, back, and shoulders, and with a temperature of 103°. Twelve hours later his hands began to feel numb and paralyzed. Paralysis gradually extended up the arms, involving the entire right arm and the left upper arm. Two days later the pain had extended down the back, and the legs became affected, the right being completely paralyzed, the left only paretic. And now we find him with a peculiar distribution of the paralysis, with some subjective sensory disturbances, but with objective sensation complete in every respect. The subjective sensory disturbances consist of pain in the shoulder and hip joints, and slight tenderness over the muscles and nerves of the limbs and back, with numb sensations in various portions of the extremities.

You will remember the patient who was suffering with multiple neuritis whose case we studied two weeks ago. We will compare his symptoms with those presented by the patient before us in order to exclude multiple neuritis as the cause for paralysis in the present instance. In the case of multiple neuritis we found not only subjective sensory disturbances, but those of an objective character. Portions of the leg and patches around the feet were completely anæsthetic. The sense of touch was not so greatly perverted in the hands. The greatest difference exists in the character of the paralysis of the two cases. In the case of multiple neuritis the muscles below the knees and below the elbows only were affected. There were foot-drop and wrist-drop. The muscles above the knees and above the elbows retained their power. Further, the paralysis was symmetrical. In the case before us, in one arm we have paralysis above the elbow, while the muscles below are fairly strong. In the other arm we find the muscles paralyzed throughout. Right leg is almost completely paralyzed, but the left leg is only paretic, and he is voluntarily able to move it in the direction desired. We see, then, that the paralysis has an irregular distribution and is asymmetrical. We do not have the typical wrist and foot-drop in this case that we found existing in multiple neuritis. The left foot and hand can be extended, the right hand partially, while the muscles that move the right foot are almost completely paralyzed. But even here, where the foot-drop exists on the right side, he is able to flex and extend the toes of the same foot. We have no difficulty, then, in excluding parenchymatous multiple neuritis of the ordinary form. From the bilateral character of the paralysis, its mode of onset, etc., we can likewise exclude brain lesion in this case. Of the acute spinal lesions that may be followed by paralysis, we may mention meningitis, myelitis, acute ascending paralysis, and poliomyelitis (cornual myelitis). In spinal meningitis of an acute character the suffering is great; there is twitching of the muscles, spastic condition of the muscles of the back, and great pain on bending the back or moving the muscles supplied by the nerves that pass through the inflamed portion of the membranes. Paralysis is not marked at first, and the muscular wasting is never an early and prominent symptom, and if the lesion extends sufficiently high to involve the arms, as in this case, there is retraction of the head, owing to the spastic condition of the post-cervical muscles. It is not difficult, then, to exclude meningitis in the present instance.

In myelitis, be it diffuse, transverse, focal, or disseminated, there are always objective sensory disturbances. In the absence of these we can exclude myelitis. In that rare and curious disease known as acute ascending paralysis the disease begins in the lower portion of the cord, causing paralysis of the lower portion of the legs first, and this paralysis gradually extends upward, involving the parts below before the parts above are affected; so that we have the legs paralyzed before the muscles of the trunk, the muscles of the trunk before the arms, and so on. Besides, there is no marked trophic disturbance, such as great muscular wasting. The case before us presents marked muscular atrophy. This, with the peculiar distribution of the paralysis, would enable us to exclude acute ascending paralysis.

We have left, then, poliomyelitis, or what is frequently known as infantile paralysis, or, what seems to me the better term, cornual myelitis. This case is fairly typical of this disease. Its mode of onset and progress have been such as are usually found in this disease in the adult. In the infant it, as a rule, comes on more rapidly, and is less likely to be attended with rheumatoid pains. The character of the pains in the patient before us, with the tenderness over the muscles and nerves, requires careful consideration. In older children and in adults joint pain with muscular soreness is not uncommon in this disease. The reason of this, without supposing a light form of neuritis, has never been satisfactorily explained. Now, in this case we find in certain regions, especially over the upper portion of the great pectoral muscles, around the shoulders, over the arms, over the calf of the legs, and over the gluteal muscles, especially on the right side, that there is considerable tenderness on pressure. Pressure over the course of the nerves gives rise to most pain. The intercostal nerves are especially sensitive to pressure. Yet, with all this sensory condition of the nerves, temperature, tactile, and pain senses are perfectly normal. How, then, are we to explain the presence of these marked subjective sensory disturbances? I know of no way to explain them except on the theory of the presence of a light form of perineuritis. If this be the case, we have, then, poliomyelitis and multiple neuritis associated. Let us study some of the more prominent symptoms of poliomyelitis. Its mode of onset varies greatly in different persons. In some, while the child is running across the floor, its legs suddenly give way, it falls, and is unable to rise again. Or a child in apparently good health falls to sleep, and on awaking an hour later is partially paralyzed in one or more of its limbs. In the vast majority of cases, however, it comes on more gradually. The child goes to bed apparently well at night, and wakes the next morning paralyzed in one or more of its extremities. Not infrequently in the child the disease is ushered in and attended for several days or a week or more by considerable fever. In the adult the disease is usually preceded by languidness, indisposition to exercise, loss of appetite, and pain in some of the joints. In some there is fever, and in others none. Paralysis comes on at the end of a day or two, or at the end of the first or second week, affecting but few muscles at first, but gradually extending until a greater or less number are involved. This is not always the case, however. In a lady whom I recently saw in consultation the paralysis came on in a few hours, and was complete in all four of the extremities at about the same time. The fever may vary, when there is a febrile stage, from 100° to 102°, occasionally going up to 103° or even 104°. I have seen cases where the febrile stage lasted two or three weeks, and in one instance it was mistaken by the attending physician for typhoid fever. This can always be avoided, if paralysis is early looked for, as it occurs comparatively early even in the prolonged febrile cases. The muscles of the distal portions of the limbs, as a rule, are more affected than those of the proximal. There are exceptions to this rule, as is seen in the patient before you, where the muscles of the forearm are unaffected, and those of the upper arm are almost completely paralyzed. In the legs the anterior tibial and peroneus muscles are usually the muscles most affected below the knees. In the arms the extensors are more affected than the flexors, and the deltoids rarely escape. It is rare, except in cases of universal and complete paralysis, to have a symmetrical distribution of the paralysis, but one group of muscles on one side of the body is completely paralyzed and a different group on the other side. Wasting usually begins in the muscles by the fifth or sixth day, and not infrequently faradaic changes may be noticed at the same time. There is a decrease in the response to the faradaic current. In a few days or weeks all the muscles may cease to respond to this current, whilst increased irritability to the galvanic may continue for a number of months.

In the prognosis of this disease much will depend upon the muscular wasting and the response of the muscles to the faradaic current. The immediate prognosis, however, is more modified by the portion of the cord affected than the extent of the paralysis. The danger when the cervical region is involved is from interference with the heart's action, or from paralysis of the muscles of respiration and deglutition. In a case that I saw recently in which the cervical region was affected, the child died suddenly while drinking a glass of milk. If the paralysis ceases to progress for twenty-four or forty-eight hours, as a rule, it will not extend further. With regard to the ultimate prognosis: if the muscles fail to respond to the faradaic current by the end of the second week, wasting usually will be great, and complete recovery exceedingly doubtful; but if loss of faradaic irritability has not appeared by the end of the second week, but subsequently does appear, wasting will be less, and recovery more nearly complete. In those cases where the muscles never fail to respond to the faradaic current recovery, as a rule, will be complete. So that we can say in proportion to the rapidity of the wasting and the loss of the faradaic irritability will the case be unfavorable as regards complete recovery. If, at the end of a year, the muscles fail to respond to the faradaic current, but little or no hope of recovery need be entertained. The prognosis in the present case is good. The faradaic irritability, although lessened, is not completely lost in any of the muscles paralyzed, although it is now the end of the fifth week since the beginning of the disease.

Treatment.—The patient during the acute stage should be kept at rest in bed and lying on the side, or in the semi-prone position, if too much discomfort is not caused by this position. If the case is seen early, dry or wet cups to the spine near the seat of inflammation may do good, the former in the weak, the latter in the robust patients. In this stage leeches would do good if timely applied. Mustard plasters over the spine are indicated in this stage. Ice poultices, warm salt bags, or the alternate application of heat and cold to the spine, may be employed with advantage. Free diaphoresis should be kept up at first, either by warm vapor baths, occasional hot packs, or by copious drinks, in which some convenient diaphoretic, such as the spirit of Mindererus, may be added. The bowels should be kept soluble, and careful attention should be paid to the digestive organs. The diet should be nutritious without being stimulating, and it should be easy of digestion.

After the acute stage is over, the condition in which we find our patient to-day, arsenic and strychnine are probably the most valuable agents, to which iron or quinine may be added as occasion may seem to indicate. Cod-liver oil is an excellent tonic in these cases, especially in children, to whom it may often be given by the skin if it is well rubbed in. Electricity, as a rule, should not be employed before the end of the third or fourth week. When a moderate faradaic current causes contraction of the muscles it meets every indication, but usually the slowly interrupted galvanic is necessary to insure contraction of the most affected muscles. Massage does good in keeping up the nutrition of both muscles and skin. The paralyzed parts should be kept well protected from changes of temperature, as they are usually cool and the nutrition in them less active than in the unaffected limbs. The orthopody of poliomyelitis is of great importance, but it would be out of place to discuss it at this time.

Original Communications.

DISEASES OF THE URINARY APPARATUS.

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(*Continued from page 679.*)

PART I.—PHLEGMASIC AFFECTIONS.

SECTION II.—SPECIAL CONSIDERATIONS.

V.

CYSTITIS; ITS CAUSES, SYMPTOMS, PROGRESS, ANATOMICAL CHARACTERS, DIAGNOSIS, AND PROGNOSIS.

URO-CYSTITIS—phlegmasia of the urinary bladder—is most frequently confined to its mucous membrane—myxocystitis; sometimes it invades the submucous fibrous coat and the muscular coat—interstitial cystitis; and rarely reaches the peripheral connective tissue and peritoneal covering—pericystitis. Some of the writers of the last century regarded cystitis as a phlegmasia of all the coats of the bladder. When the phlegmasia was confined to the mucous coat they termed the affection catarrhal fluxion of the bladder, or catarrh of the bladder. Later the term catarrhal cystitis was adopted to signify phlegmasia of the vesical mucous membrane, supposed to be attended with a great flow of mucus.

CAUSES.—This phlegmasia, which occurs with great frequency at nearly all periods of life, is consecutive to renal, urethral, or prostatic affections, and to injuries and other local irritants. Its causes may therefore be arranged into the following four groups, and each group into sundry species and varieties of causes: 1. Cystitis arising from deviations in quantity or quality of the urinary secretion. 2. Cystitis arising from the extension of phlegmasic action of neighboring organs. 3. Cystitis arising from injuries of the bladder and from other local irritants. 4. Cystitis arising from stagnation and fermentation of urine due to obstructed urination.

1. *Cystitis arising from Deviations in Quantity or Quality of the Urinary Secretion.*—Any marked deviation from the normal standard of quantity or quality of the urinary secretion is liable to cause cystitis. When there is much increase in quantity—polyuria—dependent upon disturbed innervation or structural disease of the kidneys, this urine of very low specific gravity rapidly distends the bladder, whose epithelium becomes water-logged, its superficial stratum is cast away, and the irritant urine induces in the capillaries of the mucous membrane a sufficient degree of congestion to permit the emigration of great numbers of leucocytes, which, reaching the surface and dying, become pus. If the urine be examined microscopically during the early days of an excessive and persistent polyuria, it will be observed that quantities of vesical epithelial cells have been washed away by the great flood of pale urine and much swollen by endosmosis. Examined later, it is found that these epithelial cells are much exceeded in numbers by pus-corpuscles, and that the urine contains also some red blood-cells.

When the urine is decreased in quantity—oliguria—its specific gravity is increased from excess of solid matter. It is thereby rendered acrid and irritating to the mucous membrane, and soon causes cystitis. Certain poisons induce oliguria when taken for a long time, notably opium. To what extent those who make inordinate use of this drug suffer from vesical irritability is worthy of particular inquiry on the part of the physicians who have charge of such patients.

Congestion of the vesical mucous membrane from any cause renders this membrane vulnerable even by normal urine. One of the causes of vesical congestion deserving more consideration than it generally receives is disturbance of the cutaneous circulation. This disturbance arises from different diseases, and also from certain injuries of the skin.

Paludal fevers, with frequently recurring rigors, and the so-called congestive fever, are attended with oligæmia of the body surface and consequent congestion of the internal organs and of the mucous membranes. The kidneys at first secrete scantily, and the urine, overcharged with solid matter, irritates the congested bladder. Sychnuresis is the immediate result. Later the secretion greatly increases and washes away much of the bladder epithelium. The urine soon becomes turbid from the presence of pus and of saline precipitates. There is then a subacute general myxo-cystitis, which, however, ceases soon after the removal of the original cause.

Any extensive laceration or ablation of the cutaneous surface causes shock, rigors, and internal congestion. The urine, at first scanty, soon increases in quantity and constitutes the irritant exciting cause of the cystitis.

Extensive burns of the skin also constitute an indirect cause of cystitis. From the examination of statements made by Dupuytren, Nélaton, Legouest, and others, and from the observation of cases in Bellevue Hospital, it seems that extensive burns of the surface of the body have often been the indirect cause of cystitis. But to ascertain the proportion of cases of cystitis caused by burns would require extended investigation. Theoretical reasons, clinical observation, and necropsic evidence have been furnished by careful investigators, from the time of Dupuytren, to explain the mechanism of the cystitis thus indirectly caused. The earliest phenomena noted of extensive burns of the body, irrespective of degree, are shock, rigors followed by febrile reaction, inordinate thirst, frequent desire to urinate, and congestion of the mucous membranes. These phenomena, and especially the congestion, are accounted for partly by the sudden disturbance of the nervous system and of the cutaneous circulation. Granting the occurrence of congestion of the vesical mucous membrane, then normal urine, even in small quantity, is sufficiently irritating to this congested membrane to cause at first frequent and urgent urination and, later, cystitis. Impairment of the function of the great gland, the skin, such as results from extensive burns, is apt, in a short time, to impose much additional work of elimination upon the kidneys, and the resulting polyuria aggravates the beginning cystitis induced by the first irritant, which may have been a urine diminished in quantity, but surcharged with solid matter, or even normal urine in quantity and quality.

Exposure to humid cold is spoken of by many authors as a cause of cystitis, doubtless with clinical foundation, but generally with no explanation as to how and why humid cold produces this effect upon the bladder. Exposure to humid cold is sometimes the indirect cause of cystitis because, like paludal and congestive fevers, it causes primarily some disturbance of the cutaneous circulation leading to congestion of the vesical mucous membrane and rendering it vulnerable by the urine which is the excitant of the cystitis.

The effect upon the vesical mucous membrane of variations in the quality of the urine also requires some notice. Persistent hyperlithuria, so common among dyspeptics, is a very frequent cause of cystitis. Highly acid urine, whether increased or decreased in quantity but containing an excess of uric acid, mechanically irritates the bladder and excites phlegmasia of a greater or less extent of its mucous membrane, beginning generally at or near the urethro-vesical orifice, which is pricked at each act of urination by the almost innumerable sharp-pointed crystals. Some of the most distressing cases of cystitis begin in this way. Persistent oxaluria, by the same mechanism, causes trachelocystitis. Alkaline urine, as will be seen later, likewise causes cystitis.

Pyuria from chronic pyelitis also gives rise to cystitis of the lower fundus, partly from fermentation and the irritating action of carbonate of ammonium evolved from the fermentative process.

Glycosuria is another cause of cystitis which is not infrequently overlooked. In cases of excessive glycosuria, with or without polyuria, saccharine fermentation is liable to occur and cause very distressing cystitis.

Cantharidine, taken internally or absorbed by the skin from Spanish-fly blisters and eliminated by the kidneys, is a powerful irritant to the vesical mucous membrane and causes trachelocystitis with very painful stranguria. The French, who sometimes use the resin of thapsia as a counter-irritant, think that its absorption and elimination by the kidneys produce effects similar to those of cantharidine.

Turpentine causes cystitis, either when taken internally in poisonous doses, or through gradual saturation of the system by inhalation of its fumes, as occurs among workmen in varnish factories or among sailors on "turpentine ships," some of the men being attacked with nephritis, trachelocystitis, and even urethritis, attended sometimes with profuse hæmaturia.

Excesses in alcohol, new beer, and cider-drinking are often potent factors in the causation of cystitis.

Ether, when inhaled during one or two hours for anæsthetic purposes, being largely eliminated by the kidneys, induces at first oliguria, then polyuria. In cases of prolonged anæsthesia perfect consciousness is not ordinarily restored for three or four hours after cessation of the ether inhalation. Sensation remains blunted and the mind somewhat cloudy for some time after this, so that any discomfort caused by urinary accumulation in the bladder is vaguely attributed either to the region of the late operation or to some distant part of the body. Unless particular inquiry or an examination is made, the bladder becomes so overdistended in the course of twelve hours that the patient can not urinate at will. This overdistention, together with the congestion induced by the irritant ether, causes a cystitis which often persists many weeks and sometimes becomes chronic. This cystitis is not an uncommon accident of many surgical operations necessitating prolonged anæsthesia.

Careful inquiry into possible ætical factors serves to eliminate cases of so-called idiopathic cystitis.

2. *Cystitis arising from the Extension of Phlegmasic Action of Neighboring Organs.*—Trachelocystitis is sometimes caused by, or rather, as Fournier says, may be a phase of, urethritis, a result of the extension of the phlegmasia to the urethro-vesical orifice on or about the third week of the urethritis. Though believing that, in the majority of cases, it comes without provocation, he acknowledges that trachelocystitis may, during urethritis, be excited by sexual intercourse, alcoholic excesses, irritating injections, catheterism, etc.

Trachelocystitis is sometimes excited by gonecystitis, prostatitis, hæmorrhoids, proctitis, etc.

3. *Cystitis arising from Injuries of the Bladder and from other Local Irritants.*—Unduly frequent catheterism sometimes does violence to the epithelium at the urethro-vesical orifice, and thus causes subacute or acute trachelocystitis, and is liable, in the same way, to cause general myxocystitis, more particularly when unclean instruments are used. Violent catheterism causes cystitis by contusing or by tearing the neck or body of the bladder. Contusions or wounds of the bladder directly cause cystitis, and also indirectly by leaving behind some foreign body as the irritant, such as a clot of blood, a bullet, a scale of bone, a piece of the clothing of the wounded person, etc.

Among the irritants known to cause cystitis are calculi, foreign bodies, entozoa, new growths, and tuberculosis. No comments need be made at present upon these causative agents, except in the case of the entrance into the bladder of some of the foreign substances that reach it from the small and large intestines and from without. Knuckles of small intestine sometimes become adherent to the peritoneal coat of the bladder and, by ulceration, allow the intrusion of different substances besides a part of their contents into the vesical cavity. Thus needles, fish-bones, seeds, and other objects pass from the intestines into the bladder and give rise to cystitis. In a dissecting-room specimen it was discovered that three knuckles of the ileum had become firmly adherent to the upper part of the bladder, and that between each of these knuckles and the bladder there was an opening, nearly circular, with smooth edges, and about half an inch in diameter. Judging from the appearance of the parts, the ulcerations had probably occurred several months before death. It was also evident that the existing cystitis was caused by the constant passage of the intestinal contents into the bladder. In a case of iliac abscess from ulceration of the appendix vermiformis, occurring in a boy, the tumefaction suddenly subsided, and the patient's urine was found to contain fæcal matter. The consequent cystitis did not last very long, and the boy made a good recovery. There are many cases on record where fæces and different foreign bodies had passed from the rectum into the bladder to cause cystitis and become the nuclei of phosphatic stones.

The prolonged retention of catheters for drainage of the bladder, broken ends of catheters, and other foreign bodies introduced from without are among the many factors in the causation of cystitis.

4. *Cystitis arising from Stagnation and Fermentation of Urine due to Obstructed Urination.*—The first effect of obstructed urination, whether from urethral stenosis, prostatic obstruction, or urethro-vesical contracture, is a series of spasmodic contractions of the bladder which is thus incessantly wrestling with the obstacle to the expulsion of the urine. If this be not artificially relieved, the struggle continues week after week and month after month. During that time the stream of urine steadily diminishes in size and force, and the bladder does not completely empty itself. The stagnant urine soon undergoes fermentation, followed by the evolution of carbonate of ammonium, which is a potent factor in the production of the cystitis.

Some diseases and injuries of the brain or spinal cord are followed by retention of urine, said to be due to paralysis of the bladder. If complete paralysis of the bladder occurs it seems as though there should be incontinence and not retention of urine. In cases of disease or injury of the nervous centers, is not the retention of urine due to impaired sensation in the bladder, which then allows the urine to accumulate and distend it, the disease or injury of these nervous centers interfering with their reception of the impression of the need to urinate? Carefully observed cases seem to indicate that some lesions of the nervous centers which disturb the action of the bladder do not cause complete paralysis of that viscus, for closure of the urethro-vesical orifice is not interfered with, but its voluntary opening is impossible, owing to loss of the sensibility which is so necessary to express the need to urinate. The pathic conditions which result from this loss of sensibility are contracture of the urethro-vesical orifice, stagnation and fermentation of the urine, and cystitis. In a number of autopsies made at Bellevue Hospital, upon cases of fracture of the spine with paraplegia, the bladder was almost invariably found inflamed, dilated, and sometimes thickened. In some cases surviving the injury several months, phosphatic calculi were found in the bladder and in the renal pelves.

The four groups of ætical factors give rise to acute, subacute, and chronic cystitis. The symptoms of each of these three types of cystitis will next be examined.

THE SYMPTOMS of cystitis vary according to the particular site, cause, severity, and stage of the phlegmasia, but the several types of cystitis present some symptoms that are common to all of them. These are disturbances in urination, pain, and deviations from the normal characters of the urine.

The earliest local symptom of acute cystitis, whether of the body, lower fundus, or neck of the bladder, is unduly frequent urination. This is soon followed by spasm of the muscular coat excited by irritation of the congested mucous membrane; the urine intensifying this irritation may be decreased or increased in quantity, and may be of high or of low specific gravity. During the period of increase of trachelocystitis the urine is passed in short interrupted spurts, often in drops, with the greatest distress, and in some cases more than a hundred times in the twenty-four hours. At times urination is irrepressible, and the garments are soiled with urine. In rare instances there is retention of urine. These anomalies of urination are due partly to swelling at the urethro-vesical orifice and partly to spasm of the whole bladder. The pain during urination extends to the distal extremity of the urethra in chronic as well as in subacute and acute trachelocystitis, but is most intense in the acute type, when it is characterized by patients as scalding, burning, reaching its maximum of intensity during the expulsion of the last drops of urine, and is associated with rectal tenesmus and sometimes irrepressible defecation.

In cases of vesical injury, stone, foreign bodies, and retention of urine, there is pain in the bladder independent of urination, and this pain is often irradiated to the abdominal organs, to the lumbar region, and along the nerves of the lower extremities, and is much intensified by sudden movements of the body. In cystitis of the neck and lower fundus the pain is aggravated by accumulation of fæces or by any other source of compression in the rectum. When the body of the bladder is implicated, the slightest pressure applied to the hypogastric region gives very much pain.

The deviations from the normal characters of the urine in acute cystitis are increase of acidity, excess of uric acid, and the presence of pus and blood in greater or less quantity. In trachelocystitis, attended with strangury, the small quantity of urine voided each time is mixed with blood and pus, and with mucus derived from the urethro-vesical region, the prostate, and the glands of the urethra. In cystitis due to stagnation of urine there is an abundant precipitate of ammonio-magnesian phosphates, and the urine is alkaline, slimy, highly purulent, and contains much exfoliated vesical epithelium.

The symptoms of chronic cystitis without obstruction of urination are of the same kind, but of lesser degree than those of acute cystitis, the presence in the urine of more or less pus and exfoliated vesical epithelium being among its essential characters.

The symptoms of chronic cystitis due to prostatic or urethral obstruction are frequent, difficult, and painful urination, the small stream of alkaline, purulent urine being often interrupted, and the act of urination failing to relieve the bladder, which may be distended. This type of cystitis is accompanied by a dull, constant pain along the ureters, extending up to the kidneys. The patients complain of lumbago and sciatica, and often seek the physician's advice for these aches rather than on account of the urinary stagnation and cystitis.

The constitutional symptoms of cystitis vary with the intensity of the phlegmasia and also with its cause. In acute trachelocystitis due to the extension of urethritis the pain is rarely such as to cause much general disturbance, and there is no febrile reaction, no inconvenience except during urination. It is only when urination is very frequent—every ten minutes—and accompanied with tenesmus, that the patient complains of being much ill at ease, for he is deprived of sleep, is feverish at night, and loathes his food; but these symptoms are at their height during the period of increase, which rarely lasts longer than three or four days.

In trachelocystitis due to the action of cantharidine the constitutional symptoms are proportionate in degree to the amount of the poison absorbed. In moderate quantity, the poison causes only such general effects as are induced by pain and want of rest; but when the quantity of cantharidine is great, as when administered by the ignorant or by others with nefarious intent, the constitutional effects are often alarming and sometimes fatal.

Superacute cystitis involving nearly if not all the tunics of the bladder is attended with very grave symptoms, such as recurring rigors, constant fever, vomiting, general depression, and signs of purulent infection or of intercurrent peritonitis.

When retention of urine occurs either in acute or in chronic cystitis and the bladder becomes much overdistended, the constitutional symptoms are of the gravest order and often point to a fatal issue.

THE PROGRESS of cystitis corresponds in a great measure with its cause and type, with the previous condition of the bladder, and with the age, constitutional peculiarities, and general health of the patient.

Cystitis arising from deviations in quantity and quality of the urinary secretion continues as long as the exciting agent is operative, often long after it is removed, and sometimes becomes chronic. In those cases arising indirectly from disturbance of the cutaneous circulation the cystitis has been observed to resolve in a few days, but occasionally it passes through its several stages and lasts many weeks or months. The following case is given as an example of the ordinary course of cystitis caused indirectly by an extensive burn. In this case the polyuria, though not extreme, seems to have lasted longer than it should, as it continued several weeks after the greater part of the burned skin had healed.

A man, twenty-seven years of age, was admitted into Bellevue Hospital on the 23d of May, 1891, three hours after he had been burned in the face, thorax, epigastrium, and upper extremities. The accident happened while he was varnishing with shellac and alcohol the interior of a beer vat; the safety lamp used for illumination having exploded, set the varnish on fire, and before he could get out of the vat his clothing and the several parts of his body just mentioned were burned. Though the burns were very extensive, affecting about one fourth of the body surface, they were not all equally deep, and ranged from the second to the fourth degree. In a few places only did they reach the fourth degree, while in the greater part of the injured skin of the face and body the burns did not exceed the second degree. At one o'clock P. M. on the day of his admission the thermometer showed his body temperature to be 101°; his respiration was then 24 a minute, and his pulse 110. At nine o'clock P. M. his temperature had risen to 104°. His respiration was 18 and his pulse 140. Afterward there were fluctuations between 104° and 100° in his temperature, which did not become normal until the 18th of June, when all the more superficial burns were healed. The pulse had then fallen to 72 a minute. The respirations for several days fluctuated between 18 and 22 a minute. On the first day of the accident he had great thirst and an almost incessant desire to urinate. On the second and third days he urinated every five and ten minutes and the urine was dark and scanty. For the following four days the intervals of urination increased gradually to fifteen minutes, half, three quarters, and finally one hour. The urine had then become turbid. Polyuria began on the seventh day after the accident. Before this accident he was in the habit of urinating only three or four times a day. From the 2d of June a faithful record was kept of each act of urination and of the quantity of urine passed. This record shows that he urinated fourteen times in the first twenty-four hours, ten days after the accident, passing in all seventy-one ounces of urine. The greatest quantity of urine passed by the patient during any twenty-four hours was one hundred and three ounces; this was twenty days after the accident; and the smallest quantity was fifty-seven ounces—eleven days after the accident. The greatest quantity passed at any one act of urination was twenty-eight ounces, and the smallest quantity was two ounces. The urine was not examined microscopically until the twelfth day of the accident. It was then found to contain pus. The quantity of pus gradually decreased, though the patient received no local treatment for his cystitis. On June 20th, twenty-eight days after the accident, the urine was found, on microscopical examination, to contain an abundance of octahedral crystals of oxalate of calcium, some vesical epithelium, and a few pus cells. On June 25th the polyuria had decreased to sixty-eight ounces. He continued as an out-patient and was under treatment for the burns of the upper extremities, which were not completely healed in the latter part of August, 1891, the polyuria having decreased but little.

Cystitis due to persistent hyperlithuria deliquesces or resolves very rapidly as soon as a suitable general treatment renders the urine innocuous; but when the hyperlithuria is overlooked, the phlegmasia invades the whole vesical mucous membrane and the submucous connective tissue. Contracture, diminished capacity, and thickening of the bladder ensue, and the patient is much distressed by the very frequent and painful expulsion of purulent and bloody urine, even after the affection has become chronic.

Cystitis due to the action of cantharidine deliquesces in a few hours when the quantity of the poison absorbed is little, otherwise the phlegmasia is more violent and extensive and the urine is purulent for weeks or months.

The progress of trachelocystitis arising from the extension of phlegmasic action of neighboring parts is very rapid when, under suitable treatment, the period of increase is cut short, so that at the end of three or four days urination is less frequent and less painful. The tenesmus ceases, the urine is passed in larger quantity, and is clearer. In such cases resolution is effected in the course of eight or ten days. In severer cases, particularly when treatment is delayed, resolution is not complete under three, four, or six weeks, and in some instances the phlegmasia passes into the chronic state and the whole of the vesical mucous membrane may become involved. Cystitis from injuries of the bladder, and from other mechanical irritants, such as foreign bodies, calculi, etc., continues with greater or less violence until the irritant is removed, and may require very active treatment long afterward. Soon after the ablation of benign new growths the phlegmasia rapidly subsides, but such is not the case with malignant disease and tuberculosis.

Cystitis arising from stagnation of urine due to urethral, urethro-vesical, or prostatic obstruction is gradually and slowly developed, beginning sometimes with the characters of subacute and sometimes with those of chronic phlegmasia.

In the case of obstruction from urethral stenosis, if enlargement of the contracted part of the urethra be effected before the bladder is very seriously damaged, the phlegmasia subsides or even disappears; otherwise ureteric and pyelic ectasia and phlegmasia ensue, and the supervention of complete retention of urine from a debauch *in Baccho et Venere* is to be regarded as a very serious complication.

Similar phenomena arise from neglected urethro-vesical and prostatic obstruction. In the case of unrelieved complete retention of urine from prostatic obstruction the bladder becomes greatly distended and sometimes the upper urinary organs are implicated beyond remedy.

A case seen in consultation in May, 1891, will serve to illustrate the progress of neglected prostatic obstruction and cystitis. The patient, seventy-three years of age, had been suffering for six years from unduly frequent and at times irrepressible urination. He had persistently refused to be catheterized until the last week of his life, and for four months had been greatly harassed by sychnuresis, passing only a few drachms of urine each time. When seen he was extremely emaciated and very feeble. His bladder was much distended, extending up to the umbilicus and projecting forward very much as does the pregnant uterus at the sixth month. It was not deemed prudent to empty this bladder at one sitting, therefore, when ten ounces of urine had been withdrawn, the catheter was removed and not again used until the expiration of three hours, when twelve ounces of clear urine escaped which apparently contained but a small quantity of pus. After this, it was agreed that one pint be drawn off four times each day. Palpation of the abdomen then revealed great ectasia of the left ureter, which was at first mistaken for a knuckle of small intestine. The right ureter could not be felt. Although the bladder was in this manner gradually emptied in the course of three days, and all untoward consequences to the organ that would have arisen from its sudden evacuation were thus averted, the patient gradually sank and died one week after. No autopsy was made. Aside from the effects of the overdistention of his bladder, the patient was in fair general condition, and had he consented to be regularly catheterized, even a few months before the fatal event, he would have been spared great suffering and would not have died from the consequences of retention of urine.

Another grave consequence of retention of urine may here be incidentally stated, and that is the profuse hæmorrhage which sometimes follows the too precipitate evacuation of the overdistended bladder in elderly men suffering from prostatic obstruction and cystitis. This phenomenon may be thus explained: In overdistention of the bladder its coats are greatly stretched; the capillary vessels of the mucous membrane are likewise stretched and consequently weakened. When, therefore, the mechanical support given by the accumulated urine is suddenly removed, the extreme tension of the vesical parietes is succeeded by extreme flaccidity; the nearly empty capillaries are almost instantly gorged with blood, and their delicate walls give way before the sudden impulse of the refluent blood which soon begins to ooze from thousands of minute rents of the mucous membrane. In some cases the bladder has been found greatly distended with clotted blood.

Polyuria sometimes follows the precipitate evacuation of the distended bladder. It has been observed in several instances in great excess. In one case it reached twenty-seven pints (four hundred and thirty-two ounces) in twenty-seven consecutive hours. From this it gradually decreased to ninety-six ounces each day. In three months the amount of urine in the twenty-four hours was not below sixty-four ounces, and a year expired before it dropped to forty-eight ounces in the twenty-four hours. This is an extreme case; but polyuria to a hundred ounces is not uncommon in these cases, particularly when there coexists either renal sclerosis or hydronephrosis.

In the case of stagnation of urine from disease or injury of the nervous centers, as well as from urethral or prostatic obstruction, unless catheterism be regularly employed, the phlegmasia progresses from bad to worse until the upper urinary organs are implicated. There is in these cases a constant liability to calculous formation in the bladder and renal pelves.

Normal Appearances of the Bladder.—In studying the patho-anatomy of cystitis, the normal appearances of the bladder should be borne in mind, particularly the thickness of its walls and the color of its mucous membrane.

The bladder walls consist of five coats—four complete and one incomplete. The external or peritoneal, the thinnest of the coats, is incomplete, covering the posterior surface, the whole of the upper fundus, a small extent of the lateral surfaces, and a variable extent of the lower fundus. Next to the peritoneal coat is a fibrous coat, which is continuous with the subperitoneal connective tissue and envelops the whole bladder. Beneath this is the muscular coat in three superposed layers of smooth muscle tissue; the external layer is longitudinal, the middle layer is transverse, and the internal layer is reticular. This internal reticular layer is separated from the mucous coat by the submucous or fourth coat, which is made up of loose connective tissue with a rich plexus of veins. The fifth is the mucous coat, the mucous membrane of the bladder, surmounted by a polymorphous epithelium. The mucous is the thinnest of the complete coats and contains no mucous follicles.

The maximum thickness of the walls of the empty normal adult bladder is about a quarter of an inch; but when the organ is in a state of moderate distention it is about an eighth of an inch.

When the bladder is in a state of plenitude its mucous membrane is smooth; but when it is in a state of vacuity the mucous membrane is rugous, except at the trigone, where it retains its smoothness during contraction of the bladder.

The color of the vesical mucous membrane, viewed after death, is nearly white in young children, it is grayish-white in adolescents and adults, and pinkish in old men. Viewed during life with the cystoscope, in adults it is of a distinctly pink hue, with here and there small arborescent blood-vessels.

The most sensitive part of the vesical mucous membrane is that which covers the trigone, particularly its anterior extremity, corresponding to the urethro-vesical orifice.

The anatomical characters of cystitis vary with the site, type, stage, and termination of the phlegmasia.

In acute trachelocystitis the mucous membrane is of a deep-red color, highly congested, swollen, velvety, and sometimes softened and even granular.

When cystitis arises from friction by a calculus, it begins at the neck and trigone of the bladder. As the calculus increases in size, the phlegmasia extends to the whole of the lower fundus, which becomes coated with a layer of pus and exfoliated epithelium. The mucous membrane is sometimes ulcerated at one or several spots when the stone is irregular in shape and rough. The same changes occur from the irritation of uneven foreign bodies.

Ulceration and even perforation of the bladder coats have arisen from the prolonged retention of a catheter, death occurring from the entrance of urine into the peritoneal cavity. This is well illustrated in the exhibited specimens.

The irritant, whatever it may be, remaining undisturbed, the phlegmasia sometimes extends to the submucous coat, where small abscesses form and discharge their contents into the bladder cavity, or increase in size and point inferiorly toward the rectum, anteriorly toward the pubes, or laterally or posteriorly toward the peritonæum.

In most cases the constant spasmodic contractions of the bladder to expel its contents lead to increase of thickness of the muscular coat and the phlegmasia to sclerosis of the submucous and subperitoneal coats and to permanent contracture of the viscus. In these cases the reticular or internal layer of the muscular coat is sometimes much thickened, so that the surface of the bladder cavity is very irregular, rising into bold columns and bands, resembling those of the heart cavities; hence their name, columnar bladders. In the spaces between large columns the mucous and submucous coats are forced and form small diverticula capable of lodging small calculi or of retaining from a few drops to a drachm of urine. The thin walls of these diverticula sometimes ulcerate and allow their contents to escape into the ambient connective tissue, causing pericystitis, or into the peritoneal cavity. These "spontaneous perforations" of the bladder were first well described in 1835 by the late Dr. Mercier, of Paris. In much rarer instances the diverticula are fewer, but are large and constitute what is known as sacculation of the bladder. This will be described under the head of ectatic affections.

Columnar bladders exist mainly in cases of chronic cystitis from obstruction to urination.

The slimy urine drawn from the bladder in chronic cystitis has led to the erroneous designation of this affection as "catarrhal fluxion, or catarrh of the bladder," both terms having been used first by Lieutaud in the eighteenth century. The term catarrh of the bladder is misleading and tends to error in diagnosis and to consequent neglect of regular evacuative catheterism of the bladder. Slimy, purulent urine is the result of fermentation and the conversion of the urea in the urine into ammonium carbonate, which possesses the property of rendering pus slimy, and fermentation occurs when the urine is retained in the bladder by a material obstacle at the urethro-vesical orifice or in the urethra. The ammonia is not only the irritant cause of the suppuration, but the active agent in the conversion of the greater part of the pus into slime. Many writers still specialize "catarrh of the bladder" from chronic cystitis. It is known that chronic cystitis does often exist without the urine being rendered slimy, but in such cases there is no hindrance to urination, no stagnation, no fermentation, no ammonia, and consequently no slime. The slimy urine of so-called "catarrh of the bladder" probably contains very little mucus. That the slime is due to the action of ammonia upon pus is demonstrable by taking pus from an abscess, diluting it with water in a test-tube, and adding liquor ammoniæ. In a few moments the fluid becomes slimy and can only be distinguished from slimy urine by its color and by its not containing the elements of the urine.

Among the illustrative specimens exhibited are some bladders whose walls have increased to three quarters of an inch or more in thickness. These specimens were taken from the bodies of men that had died after long suffering from urinary obstruction, stagnation of urine, and consequent cystitis and pyelonephritis. They are nearly all good examples of interstitial cystitis superadded to myxocystitis. In most of these cases the bladder is capacious. In a few specimens the bladder is shriveled and reduced in capacity to two ounces or even to an ounce and a half. Yet both the large and small illustrate vesical contracture, neither being able to expel any urine. In nearly all the specimens the mucous membrane was thickened, red, and its vessels were gorged with blood. In some of them this mucous membrane was of a slaty hue. In one it was mammillated, œdematous. These bladders contained a slimy, purulent, chocolate-colored, alkaline, fœtid urine. In nearly all of them the ureters and renal pelves were distended by this offensive urine. In some specimens the mucous membrane was coated with slabs of thick, adhesive pus, miscalled false membranes and diphtheritic membranes. One of these specimens showed, in its fresh state, the whole trigone covered with a thick layer of this pus, and in many spots the mucous membrane, of a dark-red color, appeared where the softer parts of the layer of pus had been washed away by a stream of water. The bladder walls are three quarters of an inch in thickness, and the ureters and renal pelves are much dilated. These pathic states resulted from a long-neglected urethral stricture. In two specimens nearly the whole of the vesical mucous membrane seems to have been destroyed by tuberculosis which also affected both kidneys.

Gangrene of the mucous membrane of the bladder is a rare occurrence even from violence. It has happened from the supervention of acute or superacute phlegmasia in cases of chronic cystitis, from unrelieved complete retention in cases of stagnation of urine, and from injury, particularly in bladders containing very large calculi.

THE DIAGNOSIS of cystitis is arrived at after ascertaining not only the existence of this phlegmasia, but its cause, site, type, stage, and complications. Frequent desire to urinate and pain are common to all types and stages of cystitis, and vary only in degree. These two symptoms together suffice to establish the existence of cystitis. To ascertain the cause of a particular attack of cystitis is sometimes very difficult and requires much cross-examination and a careful analysis of the facts elicited from the patient. No further reference will now be made to the question of ætiology, as it has already been fully discussed.

Acute trachelocystitis is known to exist when urination becomes very frequent, painful, and at times irrepressible; the urine, passed in small quantities, even in drops, being mixed with blood in greater or less proportion, especially during the emission of the last drops, when the pain is at its height; this urine at first containing a considerable proportion of mucus, derived from the follicles of the urethra, and in two or three days some pus, except in trachelocystitis due to the extension of acute urethritis, when pus is present in the urine from the beginning of the attack. Trachelocystitis is a common complication of prostatitis and of gonecystitis, while prostatitis and gonecystitis are rare complications of trachelocystitis. Rectal exploration with the finger is therefore necessary to ascertain the existence or non-existence of prostatitis or of gonecystitis in any case of trachelocystitis.

Subacute trachelocystitis is known to exist by manifestations which are similar to, but of lesser degree than, those of the acute type. The introduction of a rectangular exploring sound is necessary to determine if this phlegmasia is the outcome of a vesical calculus or of the presence of a foreign body.

Chronic trachelocystitis is usually associated with chronic prostatitis and sometimes with chronic urethritis. The question of its diagnosis will be examined in connection with chronic prostatitis and with chronic urethritis.

The diagnosis of subacute general myxocystitis, provoked by deviations from the normal standard of quantity and quality of the urinary secretion, is arrived at through the history of the affection and through microscopical examination of the urine. When this type of cystitis becomes chronic and is attended with frequent and painful urination, the whole bladder is contractured and its capacity diminished. This is ascertained by the slow injection, through a soft catheter, of a warm antiseptic solution, the quantity of fluid tolerated indicating the capacity of the diseased bladder. In some cases the bladder capacity is reduced to four, three, two ounces, or even to one ounce. This, however, is not the only type of cystitis in which contracture with diminished capacity of the bladder occurs. Such an untoward complication may arise in cystitis due to nearly all the causes previously named, and is therefore to be taken into consideration in diagnosticating cystitis generally.

The diagnosis of chronic cystitis developed in consequence of obstructed urination requires mechanical exploration of the urethra, urethro-vesical orifice, or prostate, and microscopical examination of the urine. If the obstruction be due to a urethral stricture, it is revealed by the use of the bulbous bougie. If urethro-vesical or prostatic obstruction be the cause of the stagnation of urine, the rectangular sound demonstrates the existence of either; also the degree of induration of the bladder and of enlargement of the bands of muscle tissue of the reticular layer. Gross inspection shows the urine to be glairy, slimy, and this urine converts red litmus paper to blue. Microscopical examination of the urine brings into view innumerable crystals of the ammonio-magnesian phosphates, pus-cells, and vesical epithelium. When no urethral, urethro-vesical, or prostatic obstruction exists and the urine contains creamy pus and no slime, the origin of the pus is presumably pyelic, urethritis being, of course, excluded.

Cystitis, general or local, arising from calculi, from injuries, or from the lodgment of foreign bodies, requires for its diagnosis mechanical exploration of the bladder and microscopical examination of the urine.

When retention of urine complicates the acute or the subacute type of cystitis, the severe pain seated in the hypogastric region and irradiated to the abdominal and lumbar regions, the tenderness and tensive swelling in the hypogastric region, the straining during vain efforts to urinate, the flatness under percussion in the region of the distended bladder, render the diagnosis of this complication comparatively easy.

When complete retention occurs in chronic cystitis due to stagnation of urine, some of these symptoms are ill-defined, while others of a graver nature are manifested. For instance, the pain is dull but continuous, there is less tenderness and little or no tension in the hypogastric region, though the bladder may contain much more urine than in the case of retention from acute cystitis, and may project forward like a gravid uterus. Retention of urine in the acute cystitis of youth and middle life is sudden and causes great suffering; in chronic cystitis from prostatic obstruction it is gradual and sometimes undiscovered until the lower part of the abdomen begins to project and a sense of fullness is experienced in that region and in the rectum. In long-neglected cases the patients are feeble and emaciated, able to take but little food, which is often vomited, the pulse is small and weak, slight rigors recur every night, the body is covered with cold sweat having a urinous odor, and, in point of fact, the kidneys are more or less damaged by the action of a column of purulent urine which is retained in and distends the ureter and renal pelvis on either side.

The prognosis of cystitis is founded upon its cause, type, and complications, upon the previous condition of the bladder, upon the age, constitutional peculiarities, and general health of the patient, and upon the degree of efficiency of the treatment.

The prognosis is favorable in cases of cystitis arising from the first, second, and third groups of causes, when free from complications and attacking healthy adults; otherwise it is doubtful, or even unfavorable, for the phlegmasia may become unmanageable, may invade the upper urinary organs, and prove fatal in a few weeks, or even in a few days. This is sometimes the case when acute or superacute phlegmasia attacks a bladder that has long been diseased, as in the chronic cystitis from urethral or prostatic obstruction.

The prognosis is unfavorable in cases of long-neglected cystitis with contracture and diminished capacity of the bladder, particularly in old and feeble men. Younger subjects, free from urethral obstruction, withstand the incidental suffering much longer, and their condition is sometimes greatly improved by treatment. In some of these younger subjects it is possible to restore the normal capacity of the bladder even after the lapse of a year from the beginning of the affection, but not without the greatest patience and persistence on the part of the physician and the greatest endurance and determination on the part of the patient.

The prognosis is unfavorable in cases of cystitis due to grave disease or injury of the nervous centers. The patients are made comparatively comfortable and life may be prolonged by treatment, but the cystitis is never cured, and renal complications finally arise, soon to prove fatal.

The prognosis is more favorable in cases of cystitis due to prostatic obstruction in vigorous elderly men, provided they be subjected to regular catheterism and vesical irrigations that tend to arrest fermentation of urine. The life of such patients is not materially shortened by this incurable affection if the local treatment be faithfully carried out.

The conclusions drawn from the foregoing study of the nature, causes, types, complications, and consequences of urocystitis are:

1. This affection can not be dealt with as a single pathic entity.

2. Its various phases and the general condition and age of the sufferer are all to be taken into account before any plan of treatment can be formed.

3. During the treatment circumstances are likely to arise which may render imperative divers modifications in this treatment, or its temporary suspension, or even the substitution of palliative for curative treatment.

(*To be continued.*)

NASAL PAPILLOMATA.*

By JONATHAN WRIGHT, M.D.

At the last meeting of this association, in the discussion which followed the reading of Dr. Ingal's paper on Warty Growths in the Nose, I was encouraged to hear the majority of the members protest against Hopmann's declaration of the relative frequency of papillomata within the nasal fossæ. Out of several hundred nasal tumors and hypertrophies removed it had been my fortune to see but one case of what I regarded as a nasal papilloma. This was a small tumor with velvet-like papillæ, about half the size of a split pea, growing at a point above the center of the cartilaginous sæptum in the left nasal fossa. It was cauterized thoroughly, and I did not see the case again. Of course, a diagnosis from gross appearances, as subsequent experience has taught me in such cases, is little better than conjecture.

Shortly after this Hopmann's (1) statement came under my observation, and I supposed with others that these tumors must have been overlooked and regarded as polypi and hypertrophies. Supported by Morell Mackenzie's (2) half admission and by the acquiescence of Schech (3), Schäffer (4), Krause (5), Moldenhauer (6), Chiari (7), Juraz (8), and Bayer (9), it seemed as though many of us had been very lax and careless observers. A careful perusal of Hopmann's original paper, however, convinced me that he differed really more radically from histologists and pathologists than he did from clinical observers. The discrepancy was one of terminology, not of rhinology.

One of the first patients I saw after I returned from Baltimore last year was a case of subglottic tumor, in which there were similar appearing growths on both sides of the sæptum, on both inferior turbinated bones and the floor of the nose anteriorly, on the naso-pharyngeal surface of the soft palate, and a double one just where the vomer articulates with the body of the sphenoid bone on the roof of the naso-pharynx. This case, which was interesting in other respects, I reported last May at the meeting of the American Medical Association. It was thought that this was a case of typical papilloma. It really was an almost unique case of papillary lymphoid hypertrophy (lymphoma). The small fragments removed from the nose were too much broken and torn to make a safe microscopical diagnosis, but they apparently differed in no way from the subglottic growth.*

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* Read before the American Laryngological Association at its thirteenth annual congress.

Lacoarret (10) speaks of two cases which had every aspect of papillomata to the naked eye, but which nevertheless, on microscopic examination, proved to be hypertrophies of the mucous membrane and granulation tissue. He reiterates the assertion, as does Moure (11), that "nasal papillomata are very rare." The latter observer, in whose service the two cases cited by Lacoarret occurred, said, before the microscopic examination: "Now or never."

Noquet (12), of Lille, who had previously reported a true case of nasal papilloma, published the account of a tumor removed from the nasal fossa which he regarded as a papilloma. On inquiry as to the result of the subsequent microscopic examination by Dr. Laurent de Hal, Dr. Noquet was kind enough to inform me by letter that "the tumor in question is composed of a *mucous tissue* covered by cylindrical epithelium and developed in the form of papillary projections." He adds: "The examination of Dr. Laurent has consequently had the same result as those practiced by you, and, as you say, the tumor proved deceptive. It is very certain, however, that this tumor had not the macroscopic appearance ordinarily seen in mucous polypi, and that it was not attached at the place where the latter are usually formed." . . .

When Virchow (13) announced his "terminological wrath" at the confusion which had arisen from the loose way in which laryngologists had used the word papilloma, he might also have reviewed with regret some of his own words. The father of modern pathology, in his great work (*Die krankhaften Geschwülste*, 1863, Bd. 1, p. 334), said:

"Papilla formation is not merely a hypertrophy, as is ordinarily said, or an excess of normal papilla formation, as though in each case the pathological papilla had grown from a pre-existing physiological one, but every surface can independently for itself produce papillæ even in places where previously no papillæ existed. . . . Little cellular buds may begin on the surface free from papillæ or on the papillæ themselves and grow into full-sized papillæ. After the cellular growth has reached a certain point there is developed, springing from beneath it, a vascular loop. This may be supported by a very small amount of connective tissue, so that it seems simply a loop of a vessel covered by epithelium, or the connective tissue may be well marked."

Certainly no clearer or more exact description could be given of any growth, and in regard to the name he says (p. 341): "The generic name must be fibroma, and papillary can only be used as an adjective addition."

This is eminently satisfactory, but in his *Cellular Pathology* (translated by Chance) he says, after referring to modifying adjective terms as applied to tumors, as colloid cancer, etc.: "In just the same manner we see that a great number of tumors, when they are seated on the surface, give rise to excrescences which, according to the nature of the surface, appear in the form of villi, papillæ, or warts. All these tumors may be comprised under one head and be called papillomata (!), but the tumors which have this form often differ, *toto cœlo*, from one another."

Further on in the same work he says: "The pathological importance of papillary tumors is, at least so far as I know, determined by the condition of their basement substance, or by that of the parenchyma of the villi themselves."

It would be irreverent to even suspect a confusion of ideas evinced by such contradictory words, but it may thus be easily seen that his "terminological wrath" at the laryngologists in general is not entirely consistent, although Hopmann's stretch of the term papilloma to include everything with a papillary surface, without regard to its parenchyma, or basement substance, or pathogenesis, is certainly well deserving of some kind of wrath from somebody. The gist of the matter is, when carefully considered, that papilloma as a generic term should be abolished. It is a surface phenomenon and not a good criterion of the much more important condition of the basement substance or of the parenchyma of the tumor. It is probably impossible to exclude the term, but it certainly is possible to confine it to its most striking exemplification—papillary fibroma.

Virchow's terms of "pachydermia verrucosa" and "hard warts," while very welcome additions to our pathological nomenclature, do not cover all the ground desirable, since the majority of laryngeal papillary tumors can not be put under these terms, as defined by him.

Birch-Hirschfeld (14), Rindfleisch (15), and Klebs (16) give practically the same idea of a papilloma, but no one approaches the luminous exactness of Virchow's early description quoted above.

Cornil and Ranvier (17), under the head of Papillary Polypi, say: "Among polypi of the nasal fossæ there are some which are truly papillomata. They are formed of numerous composite papillæ, pressed one against the other, or contained within a common epithelial investment. The stroma is fibrous and vascular, slight in quantity, while the epithelial investment is thick and composed of pavement cells."

Wolfenden and Martin (18) say that the epithelium does not dip down into the fibrous core in finger-like projections, making this one of their diagnostic points between papilloma and epithelioma. This, of course, can not be accepted as it is written, and apparently the authors mean that such digitations must not be *actually* isolated from the surface epithelium and infiltrate the stroma. As a matter of fact, these finger-like projections from proliferation of the epithelium are very common. It is hardly probable that they mean to assert the contrary. Otherwise their description tallies with that of other observers. Nearly, though not quite, all pathologists agree that the epithelium, however much proliferation there may be, must be sharply defined from the connective tissue, and a structureless limiting membrane is often described. Virchow especially dwells on this as the distinguishing point between papilloma and epithelioma.

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* I have recently seen this patient. There has been no recurrence either in the nose or larynx since the last endolaryngeal and intranasal operations—about eight months. My fears of sarcoma are thus far unrealized, for, though aphonic, she is recently married and happy.

Elsberg (19), however, following Heizman, says that in most cases it is very difficult to tell where the connective tissue begins and the epithelium leaves off. While not pretending to any great expertness in histological examination, the writer has examined many sections with a high-power oil-immersion lens where it was impossible to make out any structureless limiting membrane, and in some perfectly benign cases no distinct line could be drawn where the epithelial and connective-tissue cells met. Still, practically, with an ordinary objective, there is no difficulty in differentiating the two, excepting within extremely narrow limits. It is unnecessary to go into the very minute histology of papillomata further. Elsberg's description of many years ago is still very instructive, while the more recent description of Klebs is exhaustive and admirable.

It certainly would seem as though all these authorities were sufficiently concise and clear, with Virchow at the head, in limiting the designation of papilloma at least to papillary fibromata. Even this concession, as we have seen, has its very grave disadvantages and inconsistencies, but to extend it to practically all tumors with a papillary surface is unnecessary, and sure to result, as it has, in dire confusion.

It may be unnecessary and a tiresome repetition before members of this association, but I can not refrain, for the sake of illustration, from quoting Hopmann's description of the appearances of the tumor in his first case. After giving dimensions, etc., he says:

> "The upper and lateral (convex) surface is divided by fifteen deeply marked transverse furrows and several longitudinal furrows into separate papillæ, the most anterior of which are again divided into smaller papillæ. Sections stained with malachite green and examined in glycerin with +60 magnifying power show the cylindrical and glandular epithelium stained deep green, so that it is easy to distinguish the individual parts of the tumor from one another. First, the richness of the invariably dilated glandular acini and their canals is apparent. Glandular clusters, such as are observed in the normal mucous membrane of the turbinated bones crowded thick together and many branched, are found in sparing numbers here and there, and then only with hypertrophied acini looking swollen and dilated. Most often one observes round or oval rings lined with a simple layer of stretched epithelium. In the deeper layers of the tumor these rings are often lengthened out and irregularly dilated, here and there widened out to cavities of very irregular conformation, whose walls are no longer covered with cylindrical epithelium, but frequently, when the epithelium is not entirely lacking, lined with smaller cells. Some of these lacunæ are filled full of blood-corpuscles; others are empty. Near these glandular ectasiæ the rich network of blood-vessels is strikingly observed, from which dilated branches ascend toward the papillæ and nearly to the epithelial covering, with many anastomoses, and branches sometimes curved into loops. The stroma is formed into a fine network, whose radiating branches stretch out to the surface of the papillæ. Between these bundles of fibers, often arranged parallel, are imbedded round cells, thickly crowded together, which can hardly be distinguished in form and size from round, young epithelial cells, such as one finds in the deeper layers of the cylindrical epithelium covering the papillæ with their sac-like contours. The epithelium agrees in form and size with those of the dilated glands.
>
> "*Diagnosis.*—Adenoma papillare."

If Hopmann had afterward called these growths adenomata instead of speaking of them under the generic name of papilloma, there would have been less cause for complaint, although the writer believes that these growths are nothing more than simple hypertrophies with the glands and blood-vessels dilated and distorted in the process of chronic inflammation, with the epithelial covering proliferated, stretched, distorted, and folded on itself, crumpled, as it were, by the pressure of its confined quarters, by the irregular distention of the glands and blood-vessels, and by the uneven hyperplasia of the connective tissue beneath.

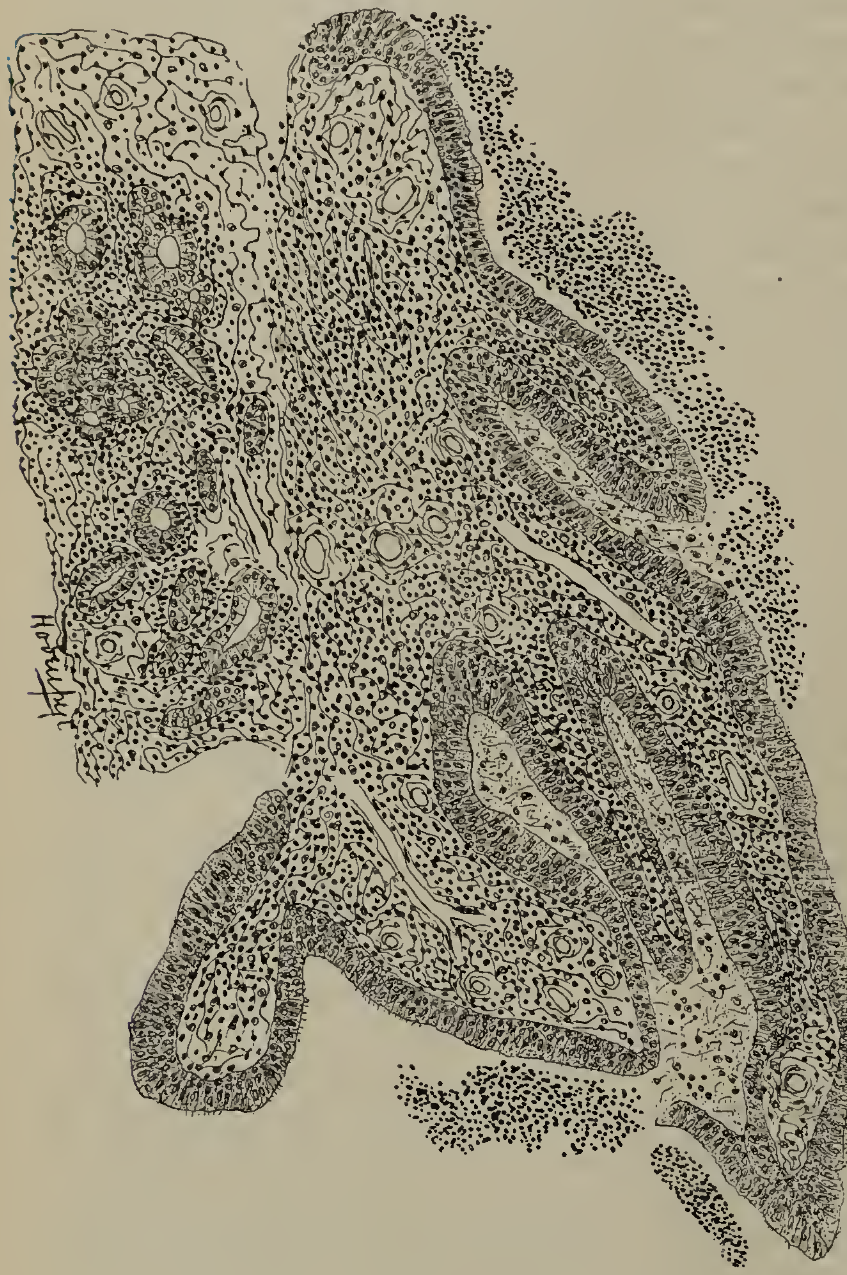
The glandular ectasia in these tumors is striking. The tumors themselves without the papillary surface are very common, while with the papillary or crumpled surface seen in a lesser degree in the so called mulberry hypertrophies they are not at all rare. Such growths may possibly be on the border line between simple hypertrophy and adenoma, for it is impossible to say that there is not a new production of glandular growth, but to give it the name of papilloma, without a description of the epithelial cells lining the papillæ, of the thickness of their layers, of their proliferation, of the basement membrane, etc., but apparently on account of the surface being covered with elevations separated from one another by parallel and crossed lines, a purely macroscopic phenomenon, is certainly a most extraordinary proceeding for a zealous worker and a good observer, and especially for a fellow-countryman of Virchow and his *confrères.* He himself says: "If one takes as a criterion the pathological reproduction of the physiological papilla (Förster, Rindfleisch, Birch-Hirschfeld), of course such papillary growths can not be regarded as papillomata."

Thost (20), in his very excellent paper, while being disposed to agree with Hopmann, also says: "If, however, one only recognizes as papillomata the epithelial proliferations with connective-tissue digitations growing in them, Hopmann's papillary tumors are not true papillomata, but adenomata—as, in fact, he describes them. It appears to me that in these cases we have to do with a glandular hyperplasia, and that the subjacent epithelium has greatly proliferated from the irritation beneath, and has itself grown out into digitations. . . . I repeat, the glandular and vascular development in these tumors seems to be the principal thing, and I think the dictum may be allowed to remain: 'True papillomata are rare in the nose.'"

If we are to allow adenomata to be called papillomata, why not certain cases of cancer, syphilis, tubercular growths? These and other pathological processes on the mucous membrane often have true *papillæ* on their surfaces, while the papillary hypertrophies in the nose have only the macroscopic *resemblance* of papillæ on their surfaces. Moreover, there are all grades of this furrowing and folding of the surface epithelium. Where are we to begin to call them papillomata?

Rarely, but undoubtedly, there are instances of true papillary fibromata growing in the nose. They differ in about every possible histological way from papillary adenomata. They are the tumors almost universally called papillomata. Why give the same name to two totally different pathological formations?

It may seem that I dwell a little strongly on this point, but one appreciates the importance of it when such good observers and distinguished authors as Sir Morell Mackenzie and Dr. Bosworth seem inclined to accept Hopmann's statements apparently from a misapprehension of what he calls papilloma, while the confusion which has arisen elsewhere is a natural but unfortunate sequel to the acceptance of the term in Hopmann's sense of the word.



I present here a drawing made by Dr. Hodenpyl, from a section in my possession of a growth removed from the nasal fossa by Dr. Knight, in a case of hypertrophy of the middle and inferior turbinated bones in which there were also a number of ordinary mucous polypi. Unfortunately, Hopmann has given us no illustration of the microscopic appearances of the growths so graphically and accurately described by him. A glance at this drawing will show, it seems to me, that it is the analogue of the first case described by Hopmann and quoted above. It will be seen that the investing epithelium, convoluted and folded on itself, forms a fair imitation of true papillæ when not examined too closely or too critically. The pathogenesis is, however, I believe, entirely different, and the histological distinction perfectly recognizable from a true papilloma. I regret I have no good example of a nasal papillary fibroma to compare with it.

Hopmann said he had seen fourteen of the growths out of one hundred cases of nasal tumors, and again six out of twenty-five (21), while Schäffer (22) has seen twenty out of one hundred and eighty-two. These proportions are not at all surprising and will probably correspond fairly well with every one's observation.

It is impossible to say how many cases of true nasal papilloma have been observed. Doubtless some of those so reported were not papillary fibromata. It is certain that only those which have been examined microscopically can be accurately classified, though some had every macroscopic appearance of a true papilloma. They evidently have a preference for the cartilaginous sæptum and the floor of the nose, while Hopmann's growths are more frequently reported on the turbinated bones, especially the inferior, the most frequent site of hypertrophies.

Mackenzie (23), after his great experience, says he has only met with five cases of what he regards as papillomata; Bosworth (24), only one out of two hundred. Warts just within the vestibule are comparatively common, and are probably analogous to the pachydermia laryngis of Virchow and the hard warts of the skin. They owe their ætiology doubtless to the irritation of the finger nail and the flow of secretions. The neighborhood of all muco-cutaneous junctions is the favorite seat of epithelial proliferations—benign, specific, and malignant. I have in my possession microscopic sections of one removed from the convex surface of a deviated sæptum just within the columna.

Michel (25) is commonly credited with reporting the first case of nasal papilloma.

Zuckerkandl's (26) case is also well known. As neither of these were examined microscopically, they can only be regarded as *probable* instances.

The two cases of Aysaguer (27), although more satisfactory, may also be placed in the same category.

Butlin (28) reports a case of nasal papilloma and rejects Hopmann's classification.

Verneuil's (29) remarkable and unique case is only paralleled by the exuberance with which papilloma occasionally recurs in the larynx and in the bladder after operation. Noquet's first case was questioned by Moure, Ruault, and Chatellier, but he stated in his letter to me that a microscopic examination proved its genuineness. His second case, as stated above, was a polypus.

Solis-Cohen (30) reported a case combined with a similar growth in the larynx.

Cozzolino's (31) two cases appear genuine, but were not examined microscopically.

The case reported by Dr. Mulhall, of St. Louis, before this association last year, he informs me, was proved by microscopic examination to be a genuine papilloma. It will be understood, of course, that I have not attempted to give any complete list of nasal papillomata. This would be impossible from the confusion in nomenclature and diagnosis. The cases mentioned are principally those most frequently referred to in treatises on the subject.

Several other members of this association mentioned a few cases that had come under their observations (32). There is no special interest attached to their symptomatology or treatment that is not too well known to bear repetition.

In conclusion, in order to know more of these growths, it would give me great pleasure to make a microscopical examination and return stained sections of any nasal papillary growth removed by any one interested in the subject. If the operator will put the specimen for twenty-four hours into eighty-per-cent. and then into absolute alcohol, and send it to me with a short history, I will return the sections by mail.

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Medical Practice in Connecticut.—"It appears that energetic action is being taken in the State to obtain a satisfactory medical-practice law when the Legislature again meets. Many newspapers of the State have taken up the crusade in favor of a bill which has been prepared, and which is said to be favored by the different so-called 'schools of medicine' in the State. Connecticut is one of the few States in which no such law has as yet been passed."—*Boston Medical and Surgical Journal.*

THE LOCALIZATION OF REMEDIES ABOUT THE SENSORY NERVES OF THE SKIN.

INDUCTION OF PROTRACTED LOCAL ANÆSTHESIA WITHOUT MECHANICAL AIDS.

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I HAVE frequently been asked the question, both verbally and in the course of correspondence with physicians resident in various parts of this country and Europe, "Is it not possible to fix remedies, and more especially local anæsthetics, in the skin for protracted periods without the aid of mechanical devices designed to arrest the circulation by compression?" This question, so frequently propounded, I now propose to answer affirmatively, and I trust that by so doing I shall be able to render a service, perhaps not altogether insignificant, to physician and surgeon alike—to the physician because he is often under the necessity of resorting to local measures in the treatment of pain, and to the surgeon, for upon him devolves the obligation of obtunding sensation in circumscribed localities, for more or less prolonged periods, during operative undertakings of various kinds.

Like all things capable of extensive application in practice, the procedure which I have devised and shall presently describe is quite simple, based, as it is, upon elementary principles of chemistry and physiology. By its use any remedy of a non-irritant character may be made to bathe the filaments of the sensory nerves of the skin for protracted periods—say, for an hour or two or even longer—and this, too, without the use of ligatures, wire gauze, rings, or indeed vascular compression in any of the forms which I have previously proposed. For convenience of illustration, let us assume that we wish to perpetuate the action of cocaine, either as a collateral expedient in the treatment of pain, or because it is desirable to utilize the local anæsthetic properties of the drug for surgical purposes. The procedure which I have devised with a view to meeting these exigencies, without the aid of the elaborate appliances previously mentioned, embodies the following principles:

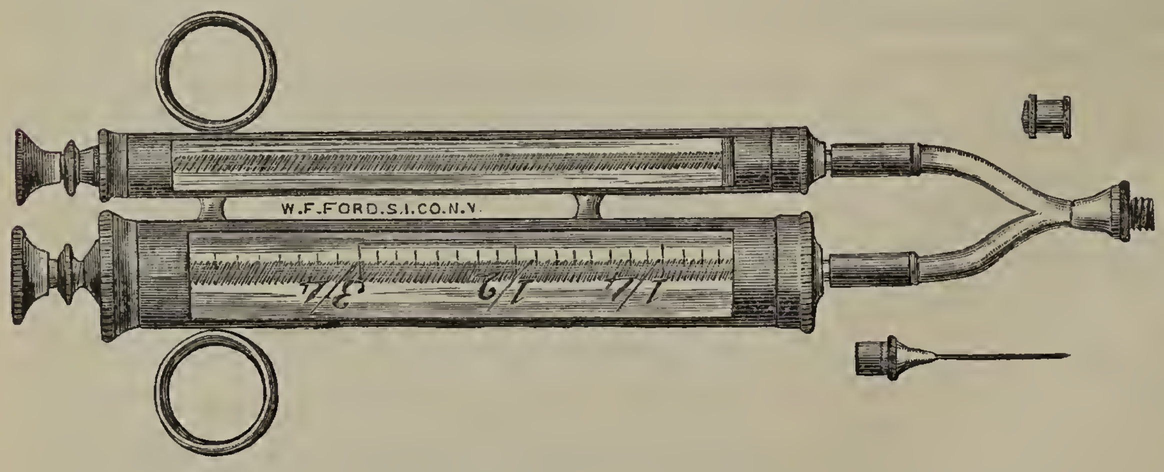
1. Injection of the medicinal solution (anæsthetic) into the skin.
2. Subsequent injection through the same hypodermic needle, and without its removal from the part, of a non-irritant oil.
3. Precipitation of this oil, after its injection into the skin, by the aid of moderate cold, *but without freezing the tissues.*
4. Taking up the slack of the skin near the seat of injection.

The technique involved in the practical application of these principles may be thus described:

In the first place, we inject an aqueous solution of the anæsthetic ($C_{17}H_{21}NO_4$, HCl) into that portion of the skin which we desire to render insensible. Then, without removing the hypodermic needle, we immediately inject a considerable quantity of the oil of theobroma, or cacao butter, as it is commonly called.

Finally, by the application of cold to the skin directly after the execution of these manœuvres, we cause the oil to solidify within the parenchyma, thus obstructing the circulation in the capillaries and causing more or less complete stasis.

To carry these manipulations into complete effect a double syringe is required, one barrel containing a two-or-three-per-cent. solution of the hydrochloride of cocaine and the other the oil of theobroma, which is maintained in a fluid state by occasionally dipping the syringe into warm water of about 110° F. The capacity of the barrel containing the anæsthetic is one hundred minims, while that destined to contain the oil will readily hold four or five hundred minims.



Both of these barrels are connected by means of a bifurcated tube with the same needle; so that by pressing first upon one piston rod and then upon the other, the two liquids may be injected through the same needle at the will of the operator.

I wish to acknowledge the carefulness with which Mr. W. F. Ford, the instrument-maker, has followed my instructions in making the syringe.

It is absolutely necessary that both the aqueous solution of the anæsthetic and the oil should proceed along the same path, so that the occlusion of the capillaries shall occur immediately after anæsthetization of the sensory filaments in their immediate vicinity. Hence the necessity of employing a double syringe and an aqueous solution of the anæsthetic—a solution that does not combine or solidify with the oil of theobroma, but remains fluid, and therefore physiologically potent, about the filaments of the sensory nerves. It is evident that oleaginous solutions of the alkaloid (cocaine) are inapplicable, for the simple reason that they combine and then solidify with the oil of theobroma, and are thus rendered inoperative, as is shown by the immediate disappearance of the anæsthesia.

The precipitation (solidification) of the oil in the tissues may be accomplished by the application to the skin of either cold water, ice, or the ether spray. I prefer the latter expedient. It is by no means necessary to spray the parts continuously, occasional refrigeration being all that is required to maintain the oil in a solid state within the tissues. To appreciate this point, it must be borne in mind that the melting point of the oil of theobroma is from 86° to 95° F., so that a reduction in temperature of from 15° to 20° is sufficient to keep the oil in a solid state within the parenchyma. Moreover, the oil of theobroma is specially applicable on account of its bland, non-irritating properties, which admits of its injection in large quantities without the least chance of unpleasant consequences.

As a matter of course, having served its purpose, the oil is melted and deported by the general circulation when the application of cold to the skin is discontinued.

But even during the application of cold there is a gradual melting of the solidified oil, beginning at the periphery and proceeding toward the center. In consequence of this the anæsthesia tends also to disappear at the periphery.

This subsidence of the anæsthesia may be enormously retarded by simply taking up the slack of the skin outside the zone of anæsthesia. To accomplish this it is only necessary to make a fold in the skin and maintain the latter by means of a strip or two of ordinary elastic adhesive plaster or by the application of a small spring clothes-pin, which may be had in the shops for a few cents. It must not, however, be inferred that stretching of the skin is requisite to the attainment of the most complete results; all that is required is the elimination of the *excessive elasticity* of the skin at the seat of injection. When this is done in the simple manner previously described the tissues above the solidified fatty mass—and nowhere else—retain a milky-white appearance as long as the oil is retained in a compact condition by the judicious application of cold. As soon, however, as the fatty mass is allowed to melt, or, in other words, when we neglect to spray the injected area with ether from time to time, the skin resumes its normal appearance and the anæsthesia is at an end. Here we have the absolute demonstration of the efficacy of the hardened oil to practically arrest the capillary circulation at the seat of injection.

By the application of these principles I have succeeded in maintaining a limited zone of anæsthesia for considerably over an hour, and I see no reason why the anæsthesia should not be maintained for two hours or more.

I fancy that, to the practical members of the profession, the above-described procedure will speak for itself, and I shall therefore refrain from commenting further upon it.

The Influence of Vaso-motor Nerves in Intra-ocular Changes.—According to the *Lancet*, "Dr. R. Katz reports a case from the ophthalmic clinic at the Moscow University which illustrates the influence which vaso-motor nerves exert on intra-ocular alterations. A student, twenty-three years of age, suffered from migraine on the right side, pericorneal injection of the right eye, mydriasis, and well-marked epiphora. Pulse, 120. Ophthalmoscopic result normal. The urine was free from albumin. The patient had not suffered from syphilis. Palpitation had been present during the last seven years. In nine days all the symptoms had disappeared on the right side, but two days later a similar attack affected the left side. Four months afterward the right side had a recurrence. Soon after this a slight diffuse vitreous opacity and well-marked hyperæmia of the left retina were observed. In a few days a similar opacity with some episclerotic injection could be seen in the right eye. This had quite subsided again in two days, and in two months and a half the vitreous opacity had almost entirely disappeared in the left eye. The case had, by an observer, been diagnosticated as one of Graves's disease."

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URIC ACID AND NERVOUS DISEASE.

A paper on uric acid in nervous diseases appears in the autumn number of *Brain*, part liii, by Dr. A. Haig, who writes sympathetically out of the abundance of personal affliction in the way of migraine. The disorders of the nervous system which Murchison associates with lithæmia are aching pains in the limbs and lassitude, pain in the shoulder, hepatic neuralgia, cramps in the legs, headache, vertigo, temporary dimness of vision, convulsions, paralysis, noises in the ears, insomnia, depression of spirits, irritability of temper, cerebral symptoms, and the typhoid state. These functional disorders are the result of vascular conditions, produced by the retention of uric acid in the blood, the exact nature of the abnormity—whether headache, epilepsy, or mental depression—being determined partly by the intensity of the contamination of the blood with uric acid, and partly by the anatomical and physiological relation of the vessels and nerve structures concerned. The anatomical arrangement, being inherited, determines in several generations the disturbance which uric acid will produce. Though not dependent for its production and excretion on nerve center, uric acid may readily bring about structural change or localization; and is, therefore, a potent factor in later organic disease. As Sutton has it: "Failure of function leads to organic destruction. It used to be thought that structure made function, but it is the reverse."

In this paper Garrod's observation on gout and rheumatic gout, to the effect that "the causes which predispose to gout, independently of those connected with individual peculiarity, are either such as produce an increased formation of uric acid in the system or lead to its retention in the blood," is in part rejected. The author believes that all uric-acid diseases are due to the retention of this acid in the blood and not to its excessive production. The chief or only cause of its excess in the body is its deficient elimination in the urine, which is generally the result of high acidity interfering with its solubility. This is the first stage of deficient excretion, a holding back or retention of uric acid in the body. There is normally a considerable store of uric acid packed away in the liver, spleen, and many other tissues. There it does no harm. But when nutrition becomes impaired from whatever cause, when there is some defect in nitrogenous metabolism, a fall in urea and a fall in acidity that increases the solvent power of the blood, uric acid is washed out of its hiding places. In the young, whose stores of uric acid are small, but who suffer from periodic attacks of retention of uric acid in the blood due to fluctuations in excretion and manifesting themselves as migraine, hysteria, epilepsy, vertigo, or aphasia, it may be sufficient to alter the diet and reduce nitrogenous metabolism while providing for the free excretion of the uric acid formed. In older persons it is necessary to clear out the accumulations of past years. This is perhaps best accomplished by salicylate of sodium for weeks or months.

When present, the uric-acid headache may be treated with a dose of any acid which, when it raises the acidity of the urine and diminishes the alkalinity of the blood, will rid the latter of uric acid. Gastric disturbance or the overpowering alkali may prevent the absorption of the drug. Nausea is best overcome by mustard externally, and aromatic spirits of ammonia or nux vomica can take the place of acids. Sometimes small doses of opium or mercury will act where acids fail. They all operate in the same way, by clearing the blood (and consequently the urine) of uric acid. The best rule is to get the stomach in good order, and then give salicylate of sodium for two or three days to sweep out of the body any remnant of uric acid that may be hidden away. In spite of drugs, the unfortunate victim of uric acid is sure to be held by the enemy sooner or later, many times perhaps. Diet is the only hope, according to Dr. Haig, milk or farinaceous diet, carried out rigorously and with persistence.

MORTALITY BY DIPHTHERIA IN OCTOBER, 1891.

There are indications of a refluent wave of diphtheria—and of mortality thereby—in this State and Connecticut. The monthly reports of the boards of health of these two States for October are in harmony as showing an excessive and apparently rising mortality in the larger cities. In New York we find that the deaths from this cause rose in one month from 334 to 527; while in October, 1890, there were only 370 deaths. There was no widespread prevalence of the disease in the State at large, the deaths outside of some of the large cities being reported from a comparatively small number of the rural districts; namely, while 5·42 per cent. of the entire death-roll for the month was due to diphtheria, less than one tenth of that percentage was located outside of the listed towns and cities. The increase is thus clearly indicated as belonging to the centers of population; of these we find that New York city is set down for 176 deaths, Brooklyn 105, Albany 10, Troy 11, Binghamton 12, Elmira 12, Syracuse 6, Buffalo 39, Rochester 5, or a total of 376 deaths out of 527 in nine of the largest cities. There were no new epidemic occurrences reported in October. It should be remarked in passing that croup is listed with diphtheria both in the New York and in the Connecticut bulletins. The number of unclassified causes of death in the New York report is large and credited with 1,281 deaths out of a total of 9,718 for the month of October.

Turning now to the Connecticut report, we note that diphtheria was one of the most prominent and destructive of the zymotic diseases. The total deaths from that cause were 77, out of 1,107 for the State at large from all causes, or 6·09 per cent. Of this number, 64 deaths were in cities, and only 13 in communities rated at less than 5,000 population. The cities having the largest mortality were Hartford 19 deaths, New Haven 8, Stamford 13, Bridgeport 4, Norwalk 4; or a total of

48 deaths, from a total of 77, located in five cities. The only other diseases more fatal than diphtheria were consumption, pneumonia, and diarrhœal diseases; typhoid fever caused less than half as many deaths as diphtheria. while scarlatina had only 9 deaths.

The October recurrence of diphtheria and croup is no new phenomenon, but this season's exhibition of it, outlined above, is exceptionally severe.

MINOR PARAGRAPHS.

MALPRACTICE SUITS AGAINST HOSPITAL SURGEONS.

The bringing of malpractice suits against hospital surgeons received a severe check last week in the case of a suit against Dr. William T. Bull, of the New York Hospital. In 1885 a man sued this hospital for damages on account of the result of an operation performed on him by Dr. Bull. This suit was tried at White Plains, and the verdict was rendered in favor of the hospital. The patient, however, brought a second suit, this time against Dr. Bull. It was argued before Judge Obrien last week, and the defendant's attorney took the ground that the plaintiff had no standing in court, inasmuch as the case had already been tried once and had gone against him. The judge concurred in this, and dismissed the case.

THERAPEUTIC THROMBOSIS.

This term may be applied to the ingenious device for prolonging the effect of a local anæsthetic, as the reader will find it described in an article by Dr. Corning, published in this issue of the *Journal.*

ITEMS, ETC.

The Death of Dr. W. F. Peck, of Davenport, Iowa, occurred on December 12th. Dr. Peck was the leading surgeon of his section, having been a professor of surgery for twenty years in the State University and chief surgeon of the great Rock Island Railroad, besides holding a number of minor positions in hospitals, asylums, and insurance companies. He was president of his county and State medical associations, 1875–1876. His communications to the medical journals were surgical in character, as a rule, ovariotomy and lithotomy having been the fields of a very considerable experience.

Society Meetings for the Coming Week:

Tuesday, *December 29th:* Boston Society of Medical Sciences (private).

Wednesday, *December 30th:* Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield).

Friday, *January 1st:* Practitioners' Society of New York (private); Baltimore Clinical Society.

Saturday, *January 2d:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN OBSTETRICS AND GYNÆCOLOGY.

Meeting of October 22, 1891.

Dr. Egbert H. Grandin in the Chair.

Operations on the Products of Pelvic Inflammation; Hæmorrhage and Shock.—Dr. W. Gill Wylie presented several specimens to illustrate the expression of certain changes in his opinions as to the advisability of operative interference in cases of abscesses and sinuses the sequelæ of previous pelvic inflammations. He said that, like all operators, up to a few years ago he had not tried to persuade patients to have these conditions radically approached. . He had always been in doubt as to whether he could deal with them successfully. Now he believed that he could do so with very little more risk to the patients than accompanied ordinary cases of salpingitis. When these abscesses offered a fluctuating point posterior to the broad ligament they might be punctured, but this was not justifiable anteriorly. When he found, after waiting for the abscess to fill, that no safe area offered for puncture, he opened the belly and examined the tissues, and then it was easy to puncture and drain through the vagina. By this procedure the intestines were avoided and the chances of sepsis were minimized. But such measures were for the most part only palliative, the abscess cavity would refill, and the trouble would continue indefinitely until the tubes and ovaries were removed. When this was done great care should be taken in dealing with the adhesions which involved the gut. The trocar used by the speaker in puncturing these abscesses was specially constructed so that a portion of it could be left *in situ* and constitute the drainage-tube until the adhesive inflammation around it was sufficiently firm to form a channel to the steel dilator. Withdrawal of the trocar in the ordinary way and trying to re-enter the puncture was always likely to result in a false passage through the connective tissue.

The author also stated, an opinion based on observation, that many of the fatal issues from laparotomies which were put down to shock were really attributable to hæmorrhage. The greatest care should be taken to stop all bleeding before closing the cavity.

Puerperal Phlegmasia Alba Dolens.—Dr. J. Henry Fruitnight read a paper on this subject. In the study of this disease he said it would be observed that uncertainty and change had been characteristic of the pathology of the affection. He then reviewed briefly the various opinions as to its pathology at different periods, and deduced from such that the generally accepted view was that the disease was a phlebitis of a peculiar nature, and, although depending upon the puerperal state, it differed essentially from other varieties of phlebitis, and particularly from uterine phlebitis. It might be concluded, then, that the chief factors in force during the disease were thrombosis of the venous and occasionally of the lymphatic system. This explained the swelling, pain, œdema, and mode of resolution of the disease. It was more common among multiparæ than among primiparæ, and occurred rather among the feeble and delicate. Accidents and complications of delivery, especially version and removal of a retained placenta, were often the exciting causes. Pressure of the fœtal head in either iliac fossa followed by pain and malaise had been believed to cause the appearance of the affection in the pregnant woman. As to its frequency, statistics showed that out of a large number of cases phlegmasia alba dolens was of rare occurrence. The left leg had been found more prone to the attack, though rarely both legs became involved in the pathological process. Hæmorrhage during or after labor seemed to favor the occurrence of an attack. A previous author had observed that the disease was relatively of more frequency in those patients who had placenta prævia. One attack did not necessarily predispose the individual to a recurrence of the disease in subsequent pregnancies. When it did occur, the author found the attack to be milder than the original one. The onset of the disease was usually in from one to five weeks after delivery. The patients complained of a dull pain, at first felt in the calf of the leg. Pressure aggravated this pain. Swelling followed, and the skin became tense and shining. Red streaks appeared along the course of the limb, the veins at the same time having a cord-like feel under the fingers. The leg assumed a white, glistening appearance, hence the name milk-leg. Febrile movement was present. Recovery from this disease was slow even when it terminated by resolution. Suppuration and gangrene might supervene. Sudden death was liable to occur in consequence of migration of the thrombus, which would be swept along in the current of the blood until arrested in the pulmonary artery The prognosis of the disease *per se* was favorable; its complications, however, might make it dangerous. The tumefaction sometimes became chronic and the limb enormously enlarged. The inflammation might be superficial or deep and the prognosis would be modified thereby. The chief ends to be secured in the treatment of this disease were elevation and immobilization of the affected limb. To relieve pain, anodyne embrocations could be used. To facilitate resorption, mercurials, belladonna, or counter-irritants could be employed. Antipyretics were indicated to allay fever. The treatment by blisters, so much lauded by the older authorities, would be unqualifiedly condemned at the present day. As soon as the pain had disappeared the smooth application of a Martin elastic bandage was proper, and subsequently a long elastic stocking should be worn for a long period of time. The patient should be warned not to rise too soon or to make any undue exertion lest the thrombus, or a fragment of it, might become detached and lead to sudden death. Finally, the patient should be cautioned not to stand too long on the affected leg, for the limb was then prone to lose its sensibility for a longer or shorter time.

In the remarks which followed, very little new was adduced as to the scientific ætiology or pathology of the disease. Dr. Buckmaster said he had known a case of phlegmasia alba dolens to promptly follow the use of a creolin wash after labor.

Dr. Waldo had observed it in connection with a case of pneumonia. Both Dr. Murray and the Chairman had suffered from the condition after typhoid fever. Dr. Murray was, however, quite clear as to the fact that whereas in the earlier days at Bellevue, before aseptic work was attempted, the occurrence of phlegmasia was quite common, now, under the new system, it was a condition rarely observed in the maternity hospital.

A Case of Intestinal Obstruction following Operation for Stenosis of the Cervix.—This was the title of a paper by Dr. F. Spencer Halsey. Mrs. T., twenty-five years of age, married four years, no children, no miscarriages, had begun to menstruate at fourteen, and had never suffered therefrom until about twenty-four, when she had had great trouble, severe pain, distention of abdomen, profuse flow for eight to twelve days, and occurring every eighteen to twenty days. On examination, there had been found marked anteflexion and pronounced cervical stenosis. Under treatment of hot-water douches and tampons and dilatation, she had improved, until at the end of six months she had been greatly benefited. She had remained so until March, 1890, when her old condition had become worse, and operation had been advised, which had accordingly been done on April 8, 1890. Ether had been used as the anæsthetic, and the patient had rallied well. Sims's operation had been performed, and the canal rendered capable of having the largest dilator passed. The patient had progressed well until the afternoon of the third day, when symptoms of acute peritonitis had developed. There had been high pulse and temperature, intense pain over the right iliac region, constipation, and discharge from the vagina of a purulent character which had increased until on the sixth day it had been very profuse and slightly tinged with blood. Under treatment the patient had gradually become better, until by the eighteenth day she had complained of nothing except pain over the right liac region and abdominal tympany. On the seventeenth day a spot of dullness had been obtained over the iliac region on the right side. During the twelve days intervening there had been only two movements of the bowels—both by enemata. The rectal tube had been used and the lower bowel had been found entirely empty. From the nineteenth to the twenty-seventh day after, the condition of the patient had become gradually worse, and signs of intestinal obstruction had become apparent, so that it had been decided to do laparotomy on May 4th, twenty-seven days after the operation. By good fortune the need of any operation had been obviated, for on the evening of the day previous the patient had been taken with a desire to strain, and had felt something give way, followed immediately by an immense passage of fæcal matter and flatus. From this time until the 8th (one month after) she had steadily improved, when on the date mentioned a large fæcal tumor had been found to the right of the uterus and posterior. The sphincter ani had been dilated under ether and the mass removed, filling an ordinary bowl. The day following the patient was feeling comfortable, the bowels had moved naturally, and by the 20th—forty-two days after the operation—she was up and about, and had remained perfectly well ever since.

Meeting of November 19, 1891.

Dr. Egbert H. Grandin in the Chair.

Vicarious Menstruation.—Dr. C. B. Kerley presented a young woman who menstruated at regular periods through a cicatrized opening in the neck, the aperture being situated at about the level of the thyreoid gland, though there was no apparent connection with that structure.

Dr. C. S. Cole cited a case in which profuse hæmorrhage had occurred from the bladder, coincident and varying in quantity and duration with the vaginal flow. The urine would be chocolate-colored and characteristic of blood coming from some point distant from the bladder itself.

The Chairman was inclined to consider the condition under consideration as in some way connected with the thyreoid gland, which sometimes enlarged during menstruation. Still there seemed to be no appearance or history of such enlargement in this case. Three instances of vicarious menstruation had come under his immediate notice. One woman had menstruated from the nose every twenty-eight days, the vaginal discharge being extremely scanty. This person was now twenty-eight years old, married, and a mother. She had acquired the abnormal habit at the age of sixteen. Another woman had menstruated in part from the umbilicus. At each period her underclothing in contact with the navel became stained with blood. The speaker had been unable to demonstrate the actual aperture, but considered the condition to be one of oozing from sudoriparous glands. Another case was one of intermittent hæmaturia occurring, not at each menstrual epoch, but always coincidently with menstruation.

Dr. G. M. Edebohls cited the case of a girl, twenty-seven years of age, who lost blood from the stomach every month. The hæmorrhage then ceased and did not recur until the next menstrual epoch. This patient had suffered from purulent salpingitis on both sides, but whether this had anything to do with the condition he did not know. He had also another girl, eighteen years of age, under his care who at each menstrual period developed an eruption on the cheek which was always of a definite shape. It was a crescentic, well-marked flush, covering an area of an inch and a half. It took the type of a vesicular eruption, but no blood was lost from it unless it was scratched.

Dr. H. N. Vineberg mentioned the case of a hysterical girl patient of his who was subject at the menstrual period to a thin sanious discharge from the nostrils, which continued for two or three days.

Ectopic Gestation.—Dr. C. S. Cole read a clinical record in which he gave the history of a case of irregular and missed menstruation, colicky pains, and an extra-uterine tumor. The case was seen in consultation by Dr. Grandin, who had coincided in the opinion that it was in all probability a case of ectopic pregnancy. The patient had been kept in bed three weeks; eight *séances* of electricity had been given (galvanic, fifty milliampères), six for fifteen minutes, two for ten minutes, at intervals of from one to four days, at the conclusion of which the tumor had disappeared, the uterus had become enlarged, and a normal gestation had seemed to obtain. An examination two months subsequently had confirmed this opinion.

After reviewing some of the well-known cases of this kind, and especially in the light of the case reported, the writer submitted as his conclusions the following propositions:

1. That there was considerable, but not incontrovertible, evidence that a strong probability of ectopic pregnancy might be determined in the prerupture stage. 2. That the diagnosis in the prerupture stage could without operation seldom, if ever, be absolute. 3. That we were not justified before rupture in an immediate laparotomy on a suspicion, however strong, unless there were peculiar and unusual conditions that would not warrant delay. 4. Electricity had proved itself in intelligent hands comparatively safe, often efficient, and in the prerupture stage worthy of careful trial. 5. We should be prepared to do a laparotomy at any time if rupture supervened or if other considerations made operative interference imperative.

The paper opened up an animated discussion covering the well-trodden ground as to the possibilities, difficulties, and impossibilities of diagnosticating ectopic gestation, and as to whether, when the condition was assumed to be defined, interference by electricity or by the knife was, in the interests of the woman, to be the more desired as the procedure of election.

Dr. R. A. Murray did not deem it the best treatment to condemn the case to the knife immediately. Diagnosis was admitted to be difficult, and was therefore the more likely to be imperfect. Even if electricity failed to cause the disappearance of the contents of the tumor, it would not be wise, if the patient suffered no inconvenience, to endanger her life by operation. But in case electricity caused rupture, careful recourse to the knife must follow. Again, although the tubes had ruptured, they might not have done so into the peritoneal cavity, but into the broad ligament, and that in such slight degree that the blood might become encapsulated as a hæmatoma. He thought it wise to kill the fœtus, if possible, by the use of electricity before the eleventh week. When this attempt proved unsuccessful and inflammatory symptoms appeared, cutting must be done.

Dr. Edebohls held that laparotomy was not called for before rupture had occurred. If the case could be diagnosticated within the second month we had a known means of destroying the life of the fœtus in electricity, and of evacuation of the amniotic fluid by exploratory puncture.

The Chairman had seen the case under discussion and simply knew that there had existed a rational history and the physical signs of an ectopic pregnancy. A tumor had been present, there was no doubt about that, and, after the careful employment of measured electricity, this tumor had disappeared. It might be assumed that the tube, not being overdistended, had not lost its contractile power and that the electricity had resulted in the expression of the fœtus, which had dropped into the uterine cavity. At any rate, the woman was now four months gravid.

A Pessary worn for Thirty Years.—Dr. Murray showed a glass pessary, about two thirds the diameter of a billiard-ball, which he had recently extracted from its environments in the vagina of an old woman of seventy. This solid exemplification of what the white woman could stand in the shape of a pessary had stayed put for thirty years.

The Treatment of Incomplete Miscarriage at the Roosevelt Hospital.—Dr. H. G. Locke described the method which was now practiced at Roosevelt Hospital when these cases had to be dealt with. The theory was to effect by radical and thorough measures speedy and complete removal of every loose and attached portion of the ovum or secundines in every case of incomplete miscarriage. The woman was placed in the lithotomy position and elaborate cleansing of the parts effected. The uterus was then grasped by bullet forceps and brought conveniently down; rapid dilatation was performed and the organ relieved of its contents by forceps, manipulation, and the wire-loop curette. Special care was taken to remove possible sources of trouble around the tube apertures. The toilet of the cavity was then made, a 1-to-5,000 bichloride solution being employed, compound tincture of iodine being added to stay continued bleeding. A tampon of iodized phenol was then passed into the cavity. In the event of persistent hæmorrhage a ten-per-cent. iodoform-gauze roller bandage, twenty feet in length and two or three inches in width, was used, a free end being passed into the uterus with dressing forceps and the cavity thus packed. This tamponnade was left for twenty-four hours.

The method elicited considerable criticism. While its efficacy was freely admitted, it was considered by some as unnecessary in its elaboration and by others as suitable only for hospital use.

SOUTHERN SURGICAL AND GYNÆCOLOGICAL ASSOCIATION.

Fourth Annual Meeting, held in Richmond, Va., November 10, 11, and 12, 1891.

The President, Dr. L. S. McMurtry, of Louisville, Ky., in the Chair.

Albuminuria: its Relation to Surgical Operations.—Dr. J. W. Long, of Randleman, N. C., read a paper on this subject, in which he drew the following conclusions:

1. That it was very rare for either ether or chloroform to injure healthy kidneys.

2. That when renal disturbances from the use of an anæsthetic, the kidneys being healthy, did occur, they were due rather to prolonged narcosis, exposure of the patient, or perhaps to the combined influences of the operation and the anæsthetic.

3. That a mild degree of albuminuria or nephritis, especially if recent, was not a contra-indication to the use of chloroform or ether.

4. That even in the presence of advanced and extensive renal changes an anæsthetic might be employed, provided the patient or family were advised of the additional risk.

5. That of the two anæsthetics usually employed, it was yet a mooted question as to which was the safer so far as the kidneys were concerned, unless it was in obstetrical operations.

6. That, while it was by no means the rule, profound functional disturbance, and even organic lesions, might be induced by an operation, apart from the influence of the anæsthetic.

7. That such renal changes were due to reflex sympathetic action or sepsis, or both.

8. That operations on certain parts, notably the abdominal and genito-urinary organs and about the mouth and rectum, were specially likely to produce renal complications.

9. That a healthy condition of the kidneys minimized, but did not obviate, the dangers referred to.

10. That albuminuria was always indicative of renal lesions, and should be regarded with distrust, but was not a positive contra-indication to an operation.

11. That when albuminuria was associated with other evidences of advanced renal changes no operation should be undertaken without first candidly stating to the patient or friends the dangers incident to the condition of the kidneys.

12. That, paradoxical as it might seem, an operation would sometimes relieve an albuminuria due to acute affections.

13. That no surgeon was justified in undertaking an operation without first knowing the state of his patient's kidneys.

Systemic Infection from Gonorrhœa.—Dr. Bedford Brown, of Alexandria, read a paper on this subject. He cited five interesting cases of systemic infection from gonorrhœa. He believed that there were two channels for the absorption and transmission of the gonorrhœal microbe into the general system. One was by continuity of surface over the mucous membrane of the genito-urinary tract from the urethra to the kidneys. The other channel was through the medium of the great lymphatic system, from the lymphatics of the urethra to the inguinal glands, thence through the lymphatics of the system into the general circulation. He believed also that this microbe so transmitted was lodged at different points in the organism. The gonorrhœal microbe, transmitted by continuity of surface over the genito-urinary tract, invariably induced specific suppurative inflammation. On the contrary, when transmitted through the lymphatics the inflammation was not of a suppurative character, but assumed peculiar types; then the contact of the infectious microbe with the mucous surfaces produced suppurative prostatitis, cystitis, ureteritis, pyelitis, and then pyonephrosis. The absorption of the same through the lymphatic channels first set up lymphangeitis of the urethra, then lymphadenitis of Cowper's glands, then of the inguinal glands, and inflammation of the connecting lymphatics. By further absorption it might induce septic phlebitis of the thigh, and finally synovitis, endocarditis, and internal destructive ophthalmitis. He also believed that in certain cases genuine septicæmia might be developed in the course of these complications. He thought there was a marked relative difference in the susceptibility of different constitutions to the systemic poisoning of gonorrhœal infection, as in other diseases; that the absorption and infection of the system from this cause was only in exceptional cases. The writer placed stress on gonorrhœal ureteritis following cystitis as a part of the action of the gonorrhœal infection in its travels over the mucous surface of the genito-urinary organs toward its final destination in this direction, the kidneys. This complication was accompanied with pain, at times sharp and paroxysmal, usually dull and aching in character. These sharp paroxysms of pain extended upward to the kidney, and not down toward the bladder, as in nephritic colic. Then, again, there was soreness in the entire line of the ureter, increased on pressure, so that the course of the canal might be marked out clearly. Ureteritis was always established before nephritis began in gonorrhœal infection.

The cases cited by the author indicated that a state of pyæmia or septicæmia might be developed by systemic infection from gonorrhœa in certain cases.

A Report of some Additional Cases of External Perineal Urethrotomy without a Guide.—Dr. J. Edwin Michael, of Baltimore, read a paper in which he said that the operation was one of great value both in gonorrhœal and in traumatic cases, and he thought one was justified in bringing forward any experience in it which might be of use to the profession. His results had been very satisfactory—a fact which he attributed rather to the fortunate circumstance that his patients were largely free from grave constitutional disease than to any method or application which he had to suggest. He had simply followed what he had considered the precepts of good surgery as applied to this region of the body—viz., free incision, free drainage, and as much of antiseptic surgery as the circumstances would allow. The report of these eight cases brought up the number of patients on whom he had done the operation of external perineal urethrotomy to seventeen, and the conditions which had made the operation necessary included nearly all those which ordinarily indicated it. None of the patients had died at a period of less than six months from the time of operation, and the deaths which had occurred had been due to other causes. In the spring of 1887 he had reported nine cases of perineal section without a guide, and he had only to add to the remarks made at that time that increasing experience led him to have more and more confidence in the good results of opening the perinæum and less fear of danger. It was true that he had had unusual good fortune in operating in cases which, as a rule, had presented no grave kidney lesion, but, while it must be admitted that such complication added to the risk of the operation as much as it did to others of equal gravity, if not more, he was firmly convinced that opening the perinæum in old stricture cases with bad kidneys was much freer from danger than internal urethrotomy or even dilatation. A case in point: About ten years before he had done an internal urethrotomy on a patient with an old tough stricture. In forty-eight hours he had had a temperature of 107° and had been very ill. The same patient had returned to him a short time since. He could pass a No. 10 E. sound with difficulty. The stricture was resilient and closed after the sound to such an extent that urination was difficult and unsatisfactory. The patient was having chills, and was somewhat nauseated and weak. His urine, although ammoniacal and ropy, gave no evidence of grave kidney trouble. He had proposed a combined internal and external urethrotomy and had refused to do either operation without the other. The patient had consented. He had opened the perinæum freely and cut the urethra with the Otis instrument to No. 40 F. The temperature had not risen above 100°, the patient had done well in every particular, and in three weeks he had sent him home passing a No. 36 F. instrument on himself.

Complications in Pelvic Surgery and how to deal with them.—Dr. Joseph Price, of Philadelphia, read a paper on this subject. The author's reasons for choosing this subject had been that the importance of recognizing the part that complications played in the work of the surgeon was not appreciated by the generality of medical men, by general surgeons, and, least of all, by the tyro in surgery and by those who were anxious to begin their surgical investigations and trial trips by an entrance into the domain of abdominal or pelvic surgery. The complications in this special branch of surgery were primarily those of surgery in general, with many things superadded to render them formidable. It might be the intention of the surgeon to remove the uterine appendages for a bleeding fibroid. In ordinary operations the removal of the uterine appendages was to the skilled abdominal or pelvic surgeon one of the simplest of undertakings. If, however, he attempted to accomplish their removal without holding in mind the complications that, as a rule, existed, or if he was a neophyte or an experimental dabbler, he would find too late in many cases that he had attempted an operation that he could not finish, or, if he did complete it, he had also sacrificed his patient, or rendered her worse off than before. In other words, to accomplish a cure he must abandon removal of the appendages and perform hysterectomy, which had but little in common with the operation originally proposed. If this idea was still further carried out we should find that complications did not confine themselves to one system of organs, but extended to all surrounding structures by reason of inflammatory adhesions. This was true of the bladder, ureters, intestine, omentum, stomach, and liver. Adhesions were the bane of abdominal and pelvic surgery, and hence we saw that the greatest mistakes and failures were made by those who from a knowledge of abdominal surgery simply had attempted to deal with pelvic inflammations. The abdominal surgeons who could be counted as really successful pelvic surgeons were therefore few. This was said with no intention of detracting from the importance of abdominal surgery. The strictly abdominal organs must always enter largely into the domain of surgery.

With regard to irrigation, we must get out of our heads the idea that it was dangerous. Too often in the writer's experience had hot water brought about a speedy reaction in patients whose lives had been almost despaired of. We were told that cases did not need flushing; that they did badly under it. The author believed that they did need flushing if they were desperate cases, and if they did badly they did so not on account of the flushing, but because of the operation that had preceded it. Next we had a resort in packing. Gauze packing, accurately applied to the bleeding or oozing surfaces so that it could be removed without interfering with the otherwise completed operation, was of infinite value in hæmorrhage. It could be suffered to remain indefinitely almost, broadly speaking, at least up to sixty or seventy hours, if absolutely clean and fresh, either salicylated or iodoformized. The drainage-tube controlled hæmorrhage. The drainage-tube was currently spoken of as if it was an annex to pelvic surgery easily dispensed with. The writer used it almost without exception in adhesions. His results were better than those obtained without its use.

The plea of the paper was for absolutely exact, painstaking work, that should leave nothing for regret, nothing to do over, nothing to explain, but should stand out in the light of results as justifiable, scientific, and perfect when put beside methods that palliated without curing and were no more a part of real surgery than hypnotism was refreshing sleep.

Laparotomies performed during the Past Year.—This was the title of a paper read by Dr. Thomas Opie, of Baltimore.

The tabulated statement accompanying the paper embraced thirty-two abdominal sections made in the twelve months beginning November 1, 1890, and ending October 31, 1891. The operations had been performed consecutively. They were: For ovarian tumors, 6; for chronic oophoritis, 7; for fibroid tumors, 4; for pyosalpinx, 5; for retroflexion with adhesions and dysmenorrhœa, 3; for exploratory incisions, 3; for extra-uterine pregnancy, 1; for abscess of the ovary, 1; for cyst of the broad ligament, 1; for cystic degeneration of the ovary, 1—total, 32.

Nine of these patients had been operated on in the amphitheatre before the whole class at the College of Physicians and Surgeons; the remainder, twenty-three, had been operated on privately. Twenty-seven had been white and five colored. The deaths had been as follows: Oophorectomy for pyosalpinx, 1; shock from ovariotomy, 1; oophorectomy for acute mania, 1; and abdominal hysterectomy for fibrocystic tumor, 1—total, 4.

Stitch Abscess.—This complication had occurred nine times, a much larger number relatively than he had seen recorded heretofore. While no case had proved disastrous, several had been exceedingly annoying in delaying patients in hospital. They had occurred most frequently in cases where the drainage-tube had been used. The early opening of abdominal dressings for any purpose favored their occurrence. When the dressings remained intact for seven days there seemed to be the greatest immunity from the stitch abscess.

Drainage had been resorted to in but three cases during the year. In a case of ovarian and dermoid cyst the patient had had a drainage-tube in five or six days, and the writer was convinced that it had retarded her convalescence. He was of the opinion that too much flushing was done; that it was but seldom called for. A plentiful supply of fine, properly prepared elephant-ear sponges would do away with flushing in most cases and remove the necessity for drainage. They were efficient helps in keeping the abdomen free from infection.

Ovarian Cysts, with the Report of a Case of Ovariotomy in a Young Girl.—Dr. Cornelius Kollock, of Cheraw, S. C., read a paper in which he said that the causes of ovarian cyst seemed to be still a question *sub judice* in the minds of those who were most progressive and who had made the greatest advancement in the science of gynæcology. Various theories had been put forth by those of larger experience, who were earnest seekers after truth and patient investigators of all unnatural and morbid phenomena. But no satisfactory decision had been obtained from all the patient and searching investigations that had been made as to the cause of this singular, unaccountable, and sometimes fatal neoplasm, characterized by histological diversity from the viscus of which it was a production. Some of the theories seemed at a glance to be plausible, but upon close study we found they would not bear inspection.

Case.—Miss C. L. H., aged eleven years, eight months, and nineteen days; general health perfect in every particular. Menstruation had first appeared about two months before she was eleven years of age, and had continued with perfect regularity, never excessive or scant, and not accompanied by the slightest pain. Her physique was fine in every way. Though less than twelve years of age, she had weighed a hundred and thirty-five pounds; was strong and active. Her breasts were as full and large as those of a woman at thirty-five. She was very handsome, had a fine voice, and sang beautifully. She was very intellectual, and stood at the head in all her classes in a large high school. He had seen her for the first time on the 9th of January, 1891. The abdomen had been greatly distended, but facies ovariana had not been very pronounced. He had been confident she had an ovarian cyst, and had suspected that she had two. On the 16th of January he had made a section about three inches below the umbilicus and had removed a cyst from each side, the one on the left weighing twelve pounds and that on the right seven pounds. A more prompt and complete recovery the writer had never seen from the simplest operation. Union by first intention had taken place, and the sutures (silver wire) had been removed at the end of the seventh day. In twelve days she had been up and about her room, and on the twenty-third day after the operation had returned to her home, a distance of two hundred miles.

It was now ten months since double ovariotomy had been done on this young girl, and there had not been the slightest discharge from her of any kind. At each menstrual period there was considerable commotion in the pelvic region, attended with some uneasiness in the head and back, but at each period these symptoms decreased, and the last two had been accompanied by no pain whatever. The remarkable physical development in this case still continued. It was now ten months since the operation. She had regained six pounds in weight, weighed a hundred and forty-one pounds, and looked better than before she underwent ovariotomy. This young girl had come from the purest and healthiest stock of people in this region. Not an individual on either side had ever been known to have any constitutional trouble of any kind. Her mother and the family physician, both highly intelligent, said they had never known her to be the least indisposed in any way.

A Medico-legal Aspect to Pelvic Inflammation.—Dr. W. W. Potter, of Buffalo, N. Y., read a paper with this title, in which he said that pelvic inflammations in women had been described, discussed, and debated from almost every point of view imaginable, until our periodical medical literature was flooded with articles on the subject, and medical society transactions were teeming and bristling with papers pertaining thereto. So far, however, he had not observed that any one had undertaken to discuss these intrapelvic conditions from a medico-legal standpoint. It was his purpose to present that aspect of the question, taking for his text a case that had developed an interesting problem in that respect.

After giving a history of the case, Dr. Potter emphasized the following points:

1. The intimate anatomical relations between the pelvic organs and the larger joints of the lower extremities, especially the hip and knee joints, rendered them liable to reflexes.

2. The importance of careful diagnosis at the outset lest grave errors and possible disastrous consequences might result from treatment.

3. The medico-legal bearing that errors of judgment in diagnosis and treatment might have in relation to the patient, as well as upon the reputation of the physician.

The Medico-legal Aspect of Intestinal Surgery.—Dr. John D. S. Davis, of Birmingham, Ala., read a paper on this subject. He said many physicians and surgeons who condemned all mechanical aids for intestinal repair—knew not how to use them, never had seen them used, refused to indorse a resection for gunshot or stab wounds—had been known to go in the witness-box for purposes of condemnation and disproval when they knew no more about intestinal surgery than a wild Indian about school teaching.

In this day of specialties in medicine but few general surgeons had either the appreciation, opportunity, or disposition to qualify themselves as expert operators in intestinal surgery, but many, to the discredit of the profession, voluntarily appeared in the criminal courts of the country pretending to be such—wise and proficient! One of the greatest professional sins of the day was perverted knowledge or conceited ignorance. It was too often that physicians and surgeons weakened and invalidated their opinions to a greater or less degree by unscrupulous interest in behalf of those employing them, a fact cunningly turned to advantage for defendants in criminal prosecutions, and for a like reason it might become dangerous to the operators they opposed and envied.

To be able to do a laparotomy for stab or gunshot wounds of the intestines, inflicted by one with murderous intent, and evade civil and criminal liability, the operator must (1) be able to show evidence of ordinary surgical knowledge in the requirement of the special operation to be performed; (2) possess ordinary surgical ability for doing the special operation to be performed; (3) exercise ordinary prudence in performing the special operation to be done as to time, place, antiseptics, asepsis, assistance, nurses, and after-treatment; (4) perform the special operation in an ordinarily skillful manner. Hence, to prevent confusion, it would be well, if possible, to determine what constituted ordinary surgical knowledge, ability, prudence, and skill. Upon these depended the whole medico-legal status of the intestinal surgeon, and upon them the expert should be required to depend also. According to the practice and rulings of courts in this country, the word ordinary, in its surgical application, meant that the surgeon should be capable of and exercise that surgical knowledge, ability, prudence, and skill with which a fair proportion of the surgeons of his given locality were endowed, and not that of the highest lights of his profession.

(*To be concluded.*)

NEW YORK ACADEMY OF MEDICINE.

SECTION IN GENERAL MEDICINE.

Meeting of October 20, 1891.

Dr. Francis Delafield in the Chair.

Essential Paroxysmal Tachycardia.—Dr. J. W. Brannan read a paper with this title. He had selected for discussion that form of tachycardia in which a very great acceleration of the pulse, occurring in paroxysms, was the cardinal symptom. The paroxysm might last a few minutes, or it might extend without interruption over a period of several weeks. In the intervals between the attacks the heart-beat would be normal, both in force and in frequency, and the individual seemed to be in perfect health. There was no history of rheumatism, nor were there any valvular murmurs to be detected. Four cases had come to autopsy. The entire nervous system was found intact in all, and the changes in the heart did not seem of any significance. All the other organs of the body were found free from disease. The disease was rare; only twenty-seven cases, including the author's, could be collected from data on the subject. Bouveret described the paroxysms, and began by dividing them into two classes according to their greater or less duration, because of the pathological consequences which ensued if they were prolonged beyond a certain period. If they lasted more than four or five days, secondary disturbances of the circulation and respiration were set up, due to the rapid weakening of the heart, its dilatation, and the incomplete emptying of its cavities. In the short attacks there was nothing noteworthy except the extreme rapidity of the heart's action. This rapidity might attain two hundred and fifty or even three hundred pulsations a minute. It was very much like that produced by section of the pneumogastrics in animals. The pulse was usually regular, but occasionally there were periods of irregularity. It was often not perceptible at the wrist, but was to be felt in the carotids and femorals. The second pulmonic sound was accentuated, showing increased tension in the pulmonary artery. Sometimes there were prodromes, such as dizziness, or a sense of constriction at the throat or epigastrium. Generally the onset was sudden; often there was no cause for the attack; at other times it followed some strong mental emotion or physical fatigue or effort, and such causes were especially efficient during convalescence from a previous attack. The face was usually very pale throughout the paroxysm. The pupils were normal, and there were, as a rule, no vaso-motor disturbances. There might be moderate dyspnœa. Anorexia and constipation were usually present, and almost complete insomnia. There was marked diminution of the urinary secretion, but no albuminuria and no fever. In some cases the temperature was below normal. The subjective sensations were variable, sometimes epigastric oppression, pain at the præcordia, numbness of the left arm, or general chilliness. The attack ended as abruptly as it began, the pulse dropping suddenly from two hundred or more to seventy-two beats a minute. There was usually little prostration afterward. The long paroxysm, however, was much more serious because of the secondary respiratory and circulatory disturbances. There was extreme cardiac distention, as shown by the area of dullness. Sometimes there was a soft systolic murmur during the paroxysm or during the convalescence, disappearing later. The stasis in the left ventricle, auricle, and pulmonary veins caused congestion and œdema of the lungs. The patient had cough, dyspnœa, and bloody expectoration. Sonorous and sibilant râles and friction sounds were to be heard. In some cases there was pleurisy with effusion. The temperature might rise three or four degrees owing to the pulmonic process. There was marked cyanosis of the lips and cheeks, with swelling and pulsation of the jugulars. There might be agitation and restlessness at night, unpleasant dreams, and even delirium The central disturbances were probably due to the arterial ischæmia and venous stasis prolonged for several days. The heart remained irritable during the first few days of convalescence, and a return of the paroxysm might be produced by a very slight cause, such as sitting up in bed. The extreme cardiac distention, however, disappeared in a few days. The paroxysms had ended fatally in eight of the twenty-seven cases—twice by syncope, twice by asystolic collapse, and in the other cases by pulmonary congestion or intestinal hæmorrhage. In discussing the ætiology of the disease, Bouveret had drawn attention to the entire absence of hysteria or neurasthenia in the cases collected by him, and there was no hereditary neurotic tendency. In most of the other cases reported it was also stated that there was no evidence of nervous predisposition. The author's patient, however, was of nervous temperament and had an epileptic son. The disease was not often observed in children. The influence of sex was not marked. Of the twenty-five cases in which the sex was noted, eleven were in males and fourteen in females. Over-fatigue, either mental or physical, seemed to be the chief cause of the affection. Excessive smoking was also an important factor and the drinking of strong coffee. The pathology of essential paroxysmal tachycardia was still undetermined and was perhaps not the same in all cases. The majority of observers believed that we had to do with a pure neurosis, a temporary disturbance of the motor innervation of the heart. Such a disturbance might be caused in three ways—by excitation of the sympathetic, by a modification of the activity of the intracardiac ganglia, or by a temporary paresis of the vagus. It seemed probable, on review of all the evidence, that in most cases there was a paresis of the vagus of central origin. The general conclusion was that the affection was a bulbar neurosis, confined to the cardiac centers of the vagus in the medulla. The pathological evidence, however, as gathered by the author, so far as it went, suggested the theory that we were dealing with a cardiac and not a neurotic disease; this theory might, however, be exploded by the next autopsy. The prognosis was very doubtful, especially at the beginning of a paroxysm. The unfavorable factors were a tendency to syncope, extensive pulmonary congestion, great præcordial pain, and the unstable condition of the heart at the end of a long attack.

In the treatment of this disease the first thing to consider was the management of the paroxysms themselves, and, second, that of the intervening periods, with a view of preventing their recurrence. During the paroxysm the patient should rest in bed; all movements and exciting emotions should be avoided. Great caution must be exercised in examining the heart; in two cases percussion of the præcordia had caused a return of the paroxysm. As to medicinal treatment, digitalis was efficient in some cases and failed entirely in others. Morphine might quiet the attack when it was due simply to excitation of the sympathetic. Caffeine, nitrite of amyl, and nitroglycerin were all of no use. Ergotine would seem to be indicated, but had not been tried, so far as the author knew. Bloodletting might relieve the condition of venous stasis. In two cases leeches applied to the præcordial region caused marked improvement, though both of the patients eventually died. One patient was able to delay the paroxysm by taking a deep inspiration and then suspending breathing as long as possible. Dr. Wood had been able to arrest the tachycardiac paroxysms by having the patients swallow a quantity of hot or cold liquid. The influence, he thought, was due to stimulation of the inhibitory cardiac center, produced by irritation of the peripheral nerve filaments of the stomach by the contact of the water. Compression of the vagus in the neck at the level of the thyroid cartilage was successful in slowing the heart in several cases.

The use of the biliary salts in cases of paresis of the whole inhibitory system had been recommended. Electricity was sometimes of service, one pole being applied to the back of the neck, the other to the trunk of the vagus or to the præcordia. In endeavoring to prevent the recurrence of the paroxysms the chief reliance was on hygienic measures.

Dr. C. L. DANA said that he had looked over his own records, hoping to find some cases bearing upon the subject, but had been disappointed in his search. He was not surprised at this when he heard that Dr. Brannan had found only twenty-seven cases reported in the medical journals. He was inclined himself to regard the affection as a neurosis of the vagus nerve, and yet this hardly seemed compatible with the fact that actual disease of the vagus in tabes did not give rise to such great rapidity of the pulse as was referred to by the reader of the paper. Probably the best conclusion would be that it was a combination of a cardiac disease with a neurosis, whether of the vagus, or of the sympathetic, or of the cardiac ganglia.

Dr. W. GILMAN THOMPSON stated that he could not recall having seen any cases exactly like those described in the paper, but he had once had a patient who had been able to send his own pulse up to 200 and keep it there for some time. The man had no disease of the heart or of any other organ. On being asked how he produced this effect upon his pulse, he said that he did it by thinking of something very horrible or terrifying. The speaker did not believe that essential paroxysmal tachycardia was due to paresis of the vagus. Complete section of the vagus did not cause such rapid action of the heart. He thought the tachycardia was the result either of excitation of the sympathetic or of disturbed action of the cardiac ganglia. He would not advise any one to try compression of the vagus in the neck with the view of slowing the heart in these cases. He had seen the procedure tried once with alarming results, the patient remaining for nearly an hour in a condition bordering on collapse

Dr. E. D. FISHER thought that the line could not always be drawn so sharply as had been done by Dr. Brannan between essential paroxysmal tachycardia and other forms of rapid heart action. The accelerated pulse of Graves's disease, for instance, though usually continuous, was sometimes of a paroxysmal character. He did not doubt that there were cases of the type described by the reader, though he had seen none himself. He had, however, seen cases which had seemed intermediate in character between essential paroxysmal tachycardia and Graves's disease, showing some of the features of each affection.

Dr. WALTER VOUGHT narrated the history of a case of tachycardia in which the pulse had attained at times the rate of two hundred pulsations a minute. The patient had had mitral regurgitation, and at the autopsy nothing whatever had been found except the patency of the mitral valve.

Dr. M. PUTNAM JACOBI said that in some of Proebsting's cases, to which the reader had referred, digitalis had been given, but had had no effect whatever upon the paroxysms. This fact had been interpreted by Proebsting as proof that in those cases at least both pneumogastric nerves were paralyzed, and consequently unable to respond in their usual manner to the drug.

Dr. BRANNAN said that probably the most reasonable conclusion, as suggested by Dr. Dana, was that we had to do with a combined cardiac and nervous disease. We had located the cardiac disease in the myocardium, but it was not so easy to say what part of the nervous system was affected. As the cardiac ganglia lay in the midst of the diseased muscular tissue, and would naturally be irritated by it, he was inclined to believe that they at least initiated the nervous disturbance. The absence of changes in the pupils and of vaso-motor symptoms was held by most observers to be against the idea of sympathetic excitation. In answer to Dr. Thompson's objection that there were also no signs of vagus paresis, except the tachycardia, the speaker replied that that was explained by supposing the lesion to be limited to the cardiac centers of the vagus, the gastric and respiratory centers being unaffected. He did not think that essential paroxysmal tachycardia could be confounded with Graves's disease. In both the pulse was rapid, but in all other respects the two diseases were entirely different in their characteristics.

Functional Disturbances of the Heart and Pulse.—This was the title of a paper by Dr. M. Putnam Jacobi. Her remarks comprised an exposition of such alterations of the pulse as could be demonstrated by means of the sphygmograph, apart from digital exploration. The author made a brief analysis of the characters of the sphygmographic trace, and emphasized two details—namely, the ætiology of the dicrotic wave, and the factors of the primary wave, which was completed by the systole, or retreat of the artery after expansion. It was pointed out that the entire trace was the product of two factors: 1, the pulse wave, transmitted from the shock of the cardiac systole; and 2, the movement of translation of the mass of blood ejected by this systole. This movement had about one eighteenth the velocity of the pulse wave. It had to be taken into account as modifying the pulse wave, because it encountered varying degrees of resistance at the periphery of the circulatory system, and these variations greatly changed the character of the pulse.

The dicrotic wave was originally considered by Marey as a centrifugal wave—*i. e.*, as traveling in the same direction as the primary wave, and caused by a rebound of the blood column from the aortic valves with whose closure the dicrotic wave coincided. At the present day, however, many authorities held that the dicrotic wave was a rebound from the periphery—*i. e*, from the arterioles and capillaries—and thus traveled centripetally, or in a direction opposite to that of the primary wave. There were many reasons in favor of this later view.

The retreat or systole of the artery which completed the primary wave of the pulse tracing was habitually referred exclusively to the elastic recoil of the previously distended artery. Dr. Lawrason, of New Orleans, had advanced the opinion that the artery did not merely recoil in virtue of its elasticity, but also actively contracted upon the blood mass; that the more vigorous this contraction, the more nearly the artery would have assumed its original position before the arrival of the dicrotic wave; hence the more the latter could be developed. Marked dicrotism, therefore, was not to be regarded simply as an evidence of low tension, but of vigorous peripheric systole in the artery. This theory had not yet been demonstrated, but it was worthy of consideration.

The author then exhibited a variety of sphygmograms: 1. From two chloro-anæmic girls. These traces were remarkable for their similar form and marked dicrotism, though belonging to very unequal degrees of the illness. 2. Several cases of adult anæmia, in which the form of the pulse tracing differed considerably from that of the chlorotics. 3. A pulse of very low tension associated with an attack of urticaria, accompanied by confusion in the head and ringing in the ears, which symptoms had disappeared under the use of ergot and strychnine. Coincidently the vascular tension was considerably raised. 4. A trace showing high tension during the premenstrual week, accompanying much premenstrual pain and headache. 5. A trace with extremely rounded primary or percussion wave, developed under the influence of strychnine. 6. A rounded, high-tension trace from a case of cerebral neurasthenia. 7. A flat-topped trace from a lithæmic patient suffering from insomnia and other neuroses of the menopause, the tracing being developed under the high pressure of thirteen ounces. The pulse had changed entirely, as shown by another tracing under the influence of nitroglycerin, which coincidently removed the morbid symptoms. 8. Traces showing great increase of tension, with slowing of the pulse, during two days of the premonitory symptoms of an epileptic attack; while other traces, taken after complete recovery from the attack, were entirely changed in character. 9. Cardiogram traces from a girl with mitral insufficiency and marked hypertrophy of the left ventricle and auricle, the contraction of the auricle being beautifully recorded on the trace. The influence of several drugs in modifying the trace was demonstrated on other cardiograms. 10. A cardiogram from a woman of seventy with reduplicated heart-beat and probable mitral stenosis of moderate extent and long standing. 11. A cardiogram in acute dilatation of the heart after severe typhoid fever, showing the effect of strophanthus, digitalis, and sparteine 12. A cardiogram and a sphygmogram from a case of habitual moderate tachycardia, with frequent paroxysms of excessively frequent heart-beat. 13. A cardiogram and a respiratory trace from a patient with exophthalmic goître.

Dr. Thompson did not think, after all, that the sphygmograph revealed peculiarities of much clinical value. He felt surprised that Dr. Jacobi should appeal to the muscular contractility of the arterial wall to explain any part of the pulse tracing, because it was easy to reproduce all the characters of such tracing on the arterial schema, where only the elasticity of inorganic tubes could come into play.

Another speaker observed that he had examined about two thousand sphygmographic tracings, and had come to the conclusion that they were of very little value in the interpretation of disease. Errors crept in too easily as a result of the least variation in the adjustment of the instrument, or in the variation of unimportant circumstances, such as the thickness of tissues overlying the artery, etc.

Dr. Jacobi said that she was aware that precisely these criticisms had been addressed to the sphygmograph; they were even repeated by Broadbent in his excellent monograph on the pulse. Nevertheless, this writer immediately proceeded to add that the sphygmogram assisted greatly to give precision to our ideas, and to call attention to details that might be overlooked without its aid. All the conditions described in the monograph were illustrated by sphygmograms. Of course the use of the sphygmograph required much care and familiarity with its adjustment, as that of all instruments of precision did. But this was no argument against its use, nor for the other statement that many observers might fail to find anything interesting in the traces. Probably no trace could be considered as absolutely diagnostic of any organic condition; all represented varying functional states; and thus normal sphymograms might be obtained from persons with organic heart disease during periods of perfect compensation; and traces simulating those of organic disease of the heart or kidneys might occur as the result of various functional disturbances. Organic lesions were generally indicated by other symptoms. But the sphygmograph was apt to be particularly valuable in detecting the vaso-motor alterations which played such an important *rôle* in female pathology—and even in such a serious disease as epilepsy. The sphygmogram reflected the many combinations determinable through varying degrees of force of the cardiac systole, with varying degrees of peripheric resistance. The precise combination existing at any given time was always an element of importance, though only one out of many in a complex pathological state. Its modification under treatment was often a most useful guide in the estimate of the latter and in the interpretation of the *modus operandi* of many remedial agents.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPÆDIC SURGERY.

Meeting of November 20, 1891.

Dr. Samuel Ketch in the Chair.

A Convenient Dressing for Cases of Torticollis after Operation.—Dr. R. H. Sayre presented a boy upon whom he had operated twelve days before for the relief of torticollis. The case illustrated the form of dressing which he had found very useful after such operations. It consisted of a plaster-of-Paris jacket and a jury-mast, the upper part of which had a fan-shaped expansion fitting the occiput. After a thorough subcutaneous subdivision of the sternal and clavicular attachments of the muscle, the boy had been allowed to come out of the ether, and then a tightly fitting foot-ball cap had been pulled down over the ears and covered with a plaster bandage, which had also included the expanded portion of the jury-mast. In applying this dressing care had been taken to place the head in the normal position. The mechanical appliances usually employed for the after-treatment of these cases were difficult and tedious to make, and must be made for each patient, and even then were hard to keep in position.

Dr. A. M. Phelps considered this the most efficient dressing of its kind that he had seen.

Dr. N. M. Shaffer did not share the opinion that the mechanical appliances ordinarily employed were complex and difficult of application; on the contrary, he thought they possessed a distinct advantage over this fixed plaster dressing, as they allowed of frequent but slight changes of position and a gradual restoration to the normal position. The case just presented did not show a complete correction of the deformity. In two recent cases of club-foot in which he had endeavored to fully correct the deformity at once too long a tendon had been the result.

Dr. L. A. Sayre said that he had employed this dressing for the last ten years to the exclusion of all others, and had found it more efficient than any he had previously tried. The principle of practice laid down by the previous speaker he considered erroneous; immediate and full correction of the deformity was much better than tormenting the patient at short intervals by frequent stretchings of partly adherent tendons. If proper judgment were exercised, the tendon should not be too long.

Dr. Phelps said that he wished to heartily indorse the principle laid down by Dr. Sayre. The English method of gradually reducing the deformity by stretching was, in his opinion, a fruitful source of non-union of tendons and of their adhering to their sheaths. He had never had a single case of non-union of tendons, and he always divided them thoroughly and supercorrected the deformity at once.

Dr. Sayre, in closing the discussion, said that in certain cases of wryneck, where stretching was preferable to tenotomy, the Archimedean screw and other mechanical appliances usually employed were very effective, but if the tissue was contractured, and hence required tenotomy, he thought the dressing he had just shown would be found to give more perfect fixation of the head. Immediately after the tenotomy a certain amount of material was poured out between the ends of the divided tendon, and a large gap could be filled up as easily as a small one. As the amount of this exudation neither increased nor diminished after the first effusion, it followed that if the position was not fully corrected at the time of the operation subsequent stretching could only produce elongation of the tendon at the expense of its diameter.

Lumbar Pott's Disease.—Dr. Halsted Myers presented a boy with a very large abscess occupying the right side of the abdomen from the ribs to the pelvic brim, extending nearly to the median line in front. The boy's general health was excellent. He was fat and ruddy. His bowels were regular. There was no albumin or casts in his urine. There was no enlargement of the liver. His temperature varied between 98° and 99° F. The patient was presented to illustrate a not small class of cases and to prove that very large cold abscesses could and did exist without causing any disturbance of the general health.

Dr. Thomas H. Manley thought the lesson to be learned from such a case was that extreme conservatism should be exercised in the treatment of abscesses where they did not give rise to pronounced constitutional symptoms.

The Chairman was of the opinion that one of the most important lessons which the orthopædic surgeons had impressed upon the general surgeons was that many cases of abscess disappeared under proper mechanical and constitutional treatment. He would even go further and say that many abscesses were prevented by such treatment, and that as these methods more nearly approached perfection abscesses would be less frequent complications of Pott's disease. While admitting that at times it was very difficult to decide as to the advisability of operative interference, he was personally of the opinion that in cases of joint or spinal disease there was less risk from the non-operative treatment, for the reason that pus in a closed cavity was much less dangerous than after the cavity had been exposed to the air.

Dr. Phelps said that in the case just presented the abscess was probably really a cavity filled with tubercular material and free from the germs of suppuration; but while such "cold abscesses" might remain for a long time without doing any harm, they were liable sooner or later to become infected with pyogenic germs, and when this occurred "burrowing" would begin and the patient would exhibit all the usual symptoms of sepsis. As there was no means of telling when such infection would occur, he thought it wiser to operate on all these cases. He felt perfectly confident that he could operate on all such cases without any danger from sepsis, and he had never seen any deaths attributable to such operations in his hands.

Dr. Shaffer said that this theory sounded very nicely, but a large hospital experience extending over a period of twenty-eight years, during which time he had tried various methods of treating these abscesses, had taught him to regard them as of no great importance, and he would not consent to opening these abscesses unless there were severe or prolonged constitutional symptoms due to the abscess. If we were wise enough to let these abscesses alone the patients would usually do better than if they were opened.

Dr. R. H. Sayre said that his experience with these abscesses had been quite different from that of the previous speaker, and he looked upon them as representing a serious phase of the disease. Where the abscess cavity did not admit of safe and thorough evacuation of its contents, so that healing might proceed uninterruptedly, it was better not to operate unless there was serious constitutional disturbance. Letting all cases of abscess alone was as harmful practice as opening every abscess which presented itself.

A Case of Talipes Equino-Varus showing the Improved Lateral-traction Apparatus.—Dr. Shaffer said that the development of this traction apparatus had been attended by much experimentation and annoyance, and during this period there had been naturally a number of failures. A large number of cases of pure equinus which would ordinarily be condemned to tenotomy could undoubtedly be cured in this way, but in the more complex deformity, known as equino-varus, the mechanical conditions were much more intricate. The first two cases which he presented were intended to show the good results which had been obtained without the latest improvement, and the third one to show the improved apparatus applied to the patient, as well as to exhibit the result of three months' treatment. In the older instrument there were three movements, viz.: (1) One which put the foot in any position as regarded the equinus; (2) one which threw the foot outward as far as desired and locked it there; and (3) one which drew the foot around into a valgus position. It had been found in cases which had been treated by this apparatus and were apparently cured that there was inward rotation of the whole foot on a vertical axis, and the object of this latest improvement was to correct this defect. It consisted in extending the apparatus up to a pelvic band and introducing a fourth movement, by which the whole foot was turned on the vertical axis. The girl whom he exhibited with this apparatus had been admitted to the Orthopædic Hospital on August 27th with such a severe type of double equino-varus that he thought many would have advised operation. The four movements which he had described had been made "up to the point of toleration," and repeated many times a day. They were executed in the following order: (1) Bringing the foot up while the heel was held down; (2) throwing the foot outward and keeping it there; (3) turning the whole foot on a vertical axis; and (4) throwing the foot into a valgus position. While the third movement was being made it was noticeable that the patella did not move. The results he had obtained with this new apparatus were remarkably quick and satisfactory.

(Discussion postponed.)

A Study of One of the Ætiological Factors of Lateral Curvature of the Spine.—Dr. Charles L. Scudder, of Boston, presented the results of an investigation into the seating of 3,500 school girls, with special reference to the effect of poor seating upon spinal deformity. Lateral curvature of the spine was in all probability due to several factors: (1) The superincumbent weight of the body falling upon a (2) spine weakened either in bone, muscle, or ligament, and (3) held persistently out of the median antero-posterior plane of the body. The speaker had made a careful examination of the seating in schools, and found that faulty positions, one of the elements of the third ætiological factor, were certainly induced because of the lack of adaptation of seat to pupil and pupil to seat. How much of a factor in causing lateral curvature poor seating was it was impossible to say, but that it played an important part there could no longer be any doubt. He suggested that the present seating arrangements of schools be used to better purpose than hitherto by arranging scholars more carefully in the room and having careful supervision exercised by those in charge. He then described the development of the adoption in the Boston public schools of the Swedish gymnastic system, and regarded it as of the highest importance as a measure likely to be somewhat preventive of spinal curvature induced by poor attitudes in sitting. This was to be brought about by no specialized gymnastics, but by general, central movements which should tend to develop the whole child along the lines of his natural muscular development.

Dr. L. A. Sayre said that if proper attention were paid to the physical training of girls there would be few cases of lateral curvature.

Dr. V. P. Gibney said that the paper reminded him of some observations he had made at one time in our public schools. In passing through the schools he had been struck with the frequent changes of position of the pupils, and he had concluded that faulty attitudes were not so potent a factor in this condition as he had previously imagined. He was, however, willing to admit that it was quite possible that weak children, having once assumed a comfortable attitude, would be likely to maintain it long enough to be injured thereby.

Dr. Ramon Guitéras agreed with the author as to the great importance of the Swedish gymnastics in training the bodies of young children. As to the matter of desks, he was happy to say that school desks and chairs had recently been invented by E. E. Hicks, a student of the university, which could readily be adapted to any height.

Dr. H. L. Taylor said that the author had shown indisputably the necessity for competent medical supervision of our public schools. As lateral curvature occurred rather more frequently among the children of the well-to-do class, who, as a rule, attended private schools, where the seating of the children usually received more careful consideration than in the public schools, and as this deformity also sometimes developed among children who had been entirely educated at home, he was not willing to admit that faulty school attitudes were very potent in producing the deformity in question. They undoubtedly did children harm, but it was still an open question as to how much they had to do with the production of lateral curvature. The instinct of young children was to keep in motion, and one of the great faults in our system of education was the absence of frequent short recesses. A recess of five minutes between each recitation, especially if utilized for gymnastic exercises, would prove very beneficial, and he hoped the paper would receive that wide and thoughtful attention which would lead to the introduction of rational physical culture into our school life.

The Chairman said that his own impression was that no habit in itself, no matter how long continued, could produce an idiopathic rotary lateral curvature of the spine. Some years ago he had written upon the ætiology of this condition, especially in young children, and had called attention then to the fact that the curvature was present before the children assumed these faulty positions, or, in other words, that the position was the result of the curvature, and not the cause. He was willing to admit, however, that a *curve* of the spine could be produced by a long-continued bad position.

Dr. Scudder, in closing the discussion, said that he recognized that among the many factors which entered into the causation of lateral curvature three important ones were the superincumbent weight of the body upon the spine (1) weakened by a diseased condition of the bone—*e. g.*, rickets; (2) weakness of the muscles (not yet demonstrated); and (3) weakness of the ligaments. Although it was not yet known whether one or all were present in any given case, it was known that the superincumbent weight of the body falling upon a spine which was kept in the median plane of the body caused only an antero-posterior curve. This was known both by demonstrations on the cadaver and by observations on the living subject. But when the spine deviated from this median plane a certain amount of lateral curvature resulted. His paper embodied a study of the effect of faulty positions on the body, and did not assert that faulty positions in themselves caused lateral curvature.

The Anatomy and Mechanism of the Foot, with Special Reference to Talipes; Exhibition of a Shoe for Club-foot.—A paper with this title was read by Dr. James E. Kelly. He indicated the relation of the progression of terrestrial animals to cyclical motion, likening that of bipeds to a unicycle in rapid motion, and a lateral bicycle, such as the "Otto," in slow motion, while a quadruped resembled an ordinary bicycle in rapid and a quadricycle in slow motion. He indicated the relation of the pelvis to the hub or nave of a wheel, the thighs and legs to the spokes, and the feet to the rim or tire. Great economy was claimed in weight, space, labor, and nutrition by the substitution for the entire wheel of two spokes, and the corresponding tire segments or feet which alternately assumed the functions of the numerous portions, each oscillating as a complex pendulum, and describing the brachystochrone or curve of the most rapid descent. He exhibited a model which reproduced the movements very accurately.

The author controverted the accepted description of the foot as consisting of antero-posterior and transverse arches, and demonstrated the fact that the two feet placed together constituted a dome or cupola, the entire margins of which rested on the ground, and consequently one foot might be more properly termed a semi-dome. He proposed an original explanation of the advantages we derived from the outer toes being the shorter in the fact that when the semi-dome revolved on its margin from the posterior to the inner anterior portion corresponding to the great toe, while the body moved forward, the consequence was that the ankle was bent outward and placed in the most favorable position for clearing the inner side of the opposite foot when swinging forward to assume its anterior position. He dwelt on the nomenclature of talipes, and suggested the term "talipes ankylosis" for that form described by Dr. Shaffer as "non-deforming talipes." He entered into the mechanism of talipes more especially with regard to the type than the particular form, and reduced the factors of deformity to extension, luxation, and torsion, and indicated their participation and isolation in various deformities. He also spoke of the influences which produced the deformities, as modeling pressure and adaptive growth, and indicated that mechanical treatment was limited by the extent to which the same factor could be utilized in rectification. The question of operation was to be decided by the same standard. He exhibited some diagrams which demonstrated the theoretical advantages of the removal of the wedge-shaped pieces of bone, with the careful avoidance of the articular surfaces, from the calcaneum, the internal cuneiform, and the tibia in talipes valgus, and the comparatively great rectification which could be obtained by the excision of very limited wedges. The author dwelt upon the ease and safety with which all portions of the tarsus could be approached through incisions along the margins of the foot, owing to the stratification of the structures forming the sole, and advocated the section of the plantar ligaments by an oblique incision parallel to the tendon of the peroneus longus from the outer side, and the freeing of the cuboid bone by a curved incision from the inner margin of the foot.

He also exhibited an apparatus which he had invented in 1881 and first demonstrated before the Massachusetts Medical Society in 1884 or 1885, in a discussion on a paper read by Dr. Edward H. Bradford on New and Original Methods of Treatment of Club-foot. The appliance consisted of a boot with a metal sole-plate, a pair of strong drawers with a box knee-cap, and a number of slight elastic bands. The plate resembled a segment of a saucer from which the steadying rim had been removed. The boot was placed on the flat central portion and had a number of holes along the elevated margin from which the elastic bands passed to the lower band of the box knee-cap. The apparatus utilized the weight of the patient's body as the rectifying force, as at each step a part of the curved portion of the plate, coming in contact with the ground, rolled it over until it reached the only part that afforded stability—namely, that upon which the foot rested—and consequently the member was forced into the most advantageous position. The elastic bands were added for the twofold object of maintaining during repose the benefits derived from locomotion, and of exercising lateral torsion on the foot by an easy arrangement of the bands with regard to the plate and the knee-cap. He expressed the belief that the shoe in its present shape would be useful in the less aggravated forms of talipes equinus and varus, and as an adjunct in the treatment of the more severe examples.

(Discussion postponed until the next meeting.)

Miscellany.

The Question of Operation in Typhlitic Disease.—At a meeting of the Philadelphia County Medical Society held on December 9th, Dr. A. B. Kirkpatrick having reported a number of cases of recovery without operation, Dr. T. S. K. Morton said he thought that the position of the surgeon in regard to appendicitis was often misunderstood, especially by the mere medical practitioner. So far as he had seen, the surgeon was not anxious to operate, and the patients not operated on vastly exceeded those on whom an operation was done.

With reference to the constipation of appendicitis, he thought that where the bowels could not be moved by any procedure either from above or from below, the case was exceedingly unfavorable for recovery, with or without operation; whereas, if the bowels could be moved, the prognosis became much more favorable. If, after the bowels had been freely moved, the symptoms subsided, he looked upon the case as one that would probably not require operation at that time. If, however, there was only temporary amelioration of the symptoms, or none at all, the case was one for operation.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

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